The Republic of the Maldives

STRATEGIC NATIONAL ACTION PLAN FOR DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION 2010-2020

Provisional Draft

Foreword

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Acronyms and Abbreviations

ADB	Asian Development Bank
CCA	Common Country Assessment
DRM	Disaster risk management
DRR	Disaster risk reduction
EIA	Environmental impact assessment
EWS	Early warning system
FGD	Focus group discussion
GDP	Gross domestic product
IFRC	International Federation of Red Cross and Red Crescent Societies
IGMH	Indira Gandhi Memorial Hospital
IPCC	Intergovernmental Panel on Climate Change
LDC	Least developed country
MDG	Millennium Development Goals
MHTE	Ministry of Housing, Transport and Environment
MMS	Maldives Meteorological Service
MNDF	Maldives National Defence Force
MoE	Ministry of Education
MoHF	Ministry of Health and Family
MRC	Maldivian Red Crescent
NAPA	National Program for Action
NCIT	National Centre for Information Technology
NDMC	National Disaster Management Centre
NDP	National Development Plan
NEAP	National Environmental Action Plan
NGO	Non-governmental organization
ODA	Official Development Assistance
SAARC	South Asian Association for Regional Cooperation
SAR	Search and rescue
SNAP	Strategic National Action Plan

SOP	Standard operating procedures
STELCO	State Electric Company
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Executive Summary

Disaster Risks in the Maldives

The frequency of occurrence of natural disasters in the Maldives is low. The fact that disaster preparedness became a priority of the Maldivian government only after the tsunami of 2004 was therefore quite normal. The Department of Meteorology, however, suggests that the islands, 199 of which are inhabited, must be prepared for significant disasters. The eastern sector of the Northern and Central islands are highly vulnerable to tsunami while the Northern islands have the greatest exposure to surge hazards and cyclones.

Other hazards include earthquakes, thunderstorms, flash floods, and prolonged dry periods. There is a 10% probability of a storm hitting the northern atolls with wind speeds from 118 to 177 kmh (Scale 1 and 2 on the Tropical Storm Intensity Saffir-Simpson Hurricane Scale) to happen in the next 10 years. [1] However, the vulnerability of the Maldives lies in the low elevation (80% below 1 meter above sea level) and flat topography of the small islands and the wide dispersion of its population in the atolls. The biggest island is only 5 kilometers long while Male' the capital, is home to a third of the total population.

The Maldives is losing land to perennial beach erosion. Salt water has intruded into its ground water resources. Finally, its economy is extremely highly dependent on tourism. [2]

Climate change impacts

Climate change is expected to have severe impacts on the small, low-lying coral islands of the Maldives because they "are highly reliant on the biological and geomorphologic

functioning of the coral reef environment for their stability. The economic base, tourism and fisheries, and livelihood is directly linked to the coral reefs." [3]

The maximum sea level rise of 59 cm by 2100 which is predicted by the UN due to global warming is expected to make flooding incidents more frequent and coastal erosion more prevalent. The projected increase in sea surface temperature poses problems as it threatens the survival of the coral reef ecosystem. With the high unit cost for providing social and economic services and infrastructure and the difficulties of access to the islands, these factors "combine to create one of the most vulnerable communities in the world."

The Imperative for Disaster Risk Reduction and Climate Change Adaptation

A review of the occurrence of disasters between 1988 and 2007 conducted by the Centre for Research on the Epidemiology of Disasters and the Catholic University of Louvain concludes that 80% of all disaster events is climate-related and that such hydrological, meteorological and climatological events account for 45% of deaths and 79% of economic losses. The data for the period from 2000-2007 revealed a strengthening upward trend with an average annual growth rate of 8.4% in reported hydro-meteorological disasters worldwide.

Various studies predict that climate change will affect disaster risks through increase in weather and climate hazards and in the vulnerability of communities to natural hazards due to ecosystem degradation, reduction in water and food availability, and changes in livelihood. In the case of the Maldives, the temperature spike during the 1998 El Nino event devastated the coral reefs, and the fishing industry.

The vulnerability of the islands is magnified further by extreme dependence on imported basic commodities like food, clothing, fuel and construction materials, usually from neighboring India, Sri Lanka and other traditional sources which, it is important to note, are likewise facing challenges due to climate change and extreme weather events.

An Integrated Approach to Disaster Risk Reduction and Climate Change Adaptation

The huge costs of disasters in terms of lost lives, property and productivity are expected to be exacerbated by climate change impacts during the coming decades. There is, therefore, good sense in finding an approach that will address both concerns with simplicity and comprehensiveness, and extra benefits as well. Climate change adaptation and disaster risk reduction (DRR) have similar aims and may utilize the same tools that have proven effective over the years.

Disaster risk reduction, or systematic efforts to analyze and manage the causes of disasters for the purpose of reducing the risks and the adverse impacts of natural hazards, promote the avoidance of hazards, reduced social and economic vulnerability to hazards, and improved disaster preparedness. DRR encompasses a wide range of natural (geological, hydro-meteorological, and biological) and human-induced (environmental degradation and technological) hazards. The Hyogo Framework for Action provides the foundation for the implementation of disaster risk reduction. Agreed in January 2005 by 168 Governments, it seeks substantial reduction of losses due to disaster. It specifically identifies the need to promote the integration of risk reduction associated with existing climate variability and future climate change into strategies for reduction of disaster risk and adaptation to climate change.

Climate change is addressed in two ways: by mitigation, or reduction of greenhouse gas emissions, and by adaptation, or the management of its impacts. There are technological mitigation solutions for the transport and power sectors in renewable energy and energy efficiency. A solution that will depend mainly of mitigation will require investments for replacement of fossil fuels and a drastic change to a low-carbon lifestyle. Its effect will be on the global concentration the gases. Adaptation, on the other hand, strengthens ecosystems, protects water resources, improves food production and livelihood, identifies risks, develops early warning systems, enforces safe building standards and provides social safety nets. It empowers the public through knowledge sharing, skills training and

access to helping partners and networks, as it ensures sustainability of the local environment.

Whereas DRR deals with the full range of natural and human-induced hazards, climate change adaptation moves outside the realm of most DRR experience, to address longer term impacts, such as loss of biodiversity, changes in ecosystem services and spread of climate-sensitive disease, that the DRR community is not likely to address. It is important for both the climate change and disaster risk management communities to recognise that adaptation and DRR have these more exclusive elements, to avoid perpetuating the erroneous view that all adaptation and DRR is the same. However, recognition of exclusive elements should not hinder the development of a more integrated approach, as the majority of adaptation and DRR measures have mutual benefits that offset both climate and disaster-related risks for a "win-win" solution.

To achieve these mutual advantages, both communities must increase awareness and understanding of adaptation and DRR synergies and differences at all levels and encourage systematic dialogue, information exchange and joint working between climate change and disaster reduction bodies, focal points and experts, in collaboration with development policy makers and practitioners. [8]

The Maldives SNAP process was initiated with UNISDR assistance per agreement with President Nasheed on July 12, 2009 to undertake the development of the Strategic National Action Plan on Disaster Risk Reduction and Climate Change Adaptation. Designed to promote collaboration among policy makers, experts, and practitioners of disaster risk reduction and climate change adaptation in the country for the development of a comprehensive risk management approach, SNAP will support the new democratic government achieve its vision of good governance and prosperity for the Maldives.

SNAP aims to build resilience of the nation and the island communities to disasters by sustaining progress made, by consolidating learned best practices, and by incorporating risk reduction into the strategy for decentralization. Harmonized with the policies, plans, and sustainable development strategy, it will identify a consolidated set of programs/projects that can be undertaken with the Government budget and those that may be considered for donor assistance.

The SNAP Process in the Maldives

The stocktaking and consultation process was guided by the principles and tools of the Hyogo Framework for Action. The review of existing policies, plans and programs related to DRR and CCA was conducted from August to October, 2009. Multi-sectoral consultations consisting of focus group discussion and a consultative leadership workshop of local government officials were held from August 16-20, 2009. Almost 100 representatives attended the forums.

The primary purpose of the consultations and interviews was to engage the stakeholders in identifying weaknesses and needs, as well as strengths and actions for adaptation and disaster risk reduction, thereby promoting a higher level of awareness among them. A qualitative assessment of progress was made along the priorities for action of the HFA, namely governance, risk assessment and early warning, knowledge management, vulnerability reduction, and disaster preparedness.

The results of these activities include recommendations for actions that the respective sectors could plan for and eventually implement. More significantly, the process surfaced the major challenges perceived by the participants, and the capacities and gaps of their organizations, their agencies, the government, that could prevent success in addressing disaster risk. Emerging from the process were four strategic areas of action in which all stakeholders could confront and address the major challenges:

1. Enabling environment for good democratic governance
2. Empowered and capable communities
3. Resilient communities with access to technology, knowledge and other resources
4. Risk-sensitive regional and local development

On a positive note, the participants reported their hope that the new democratic government and its policies of decentralization, good governance, strong commitment, and media freedom will create an enabling environment for the country. Of particular interest to the participants was the establishment of institutions like the NDMC, as the focal point for DRR, and the development of the seven provinces, as well as the improvement of inter-island accessibility through an effective national transport system.

1. Introduction

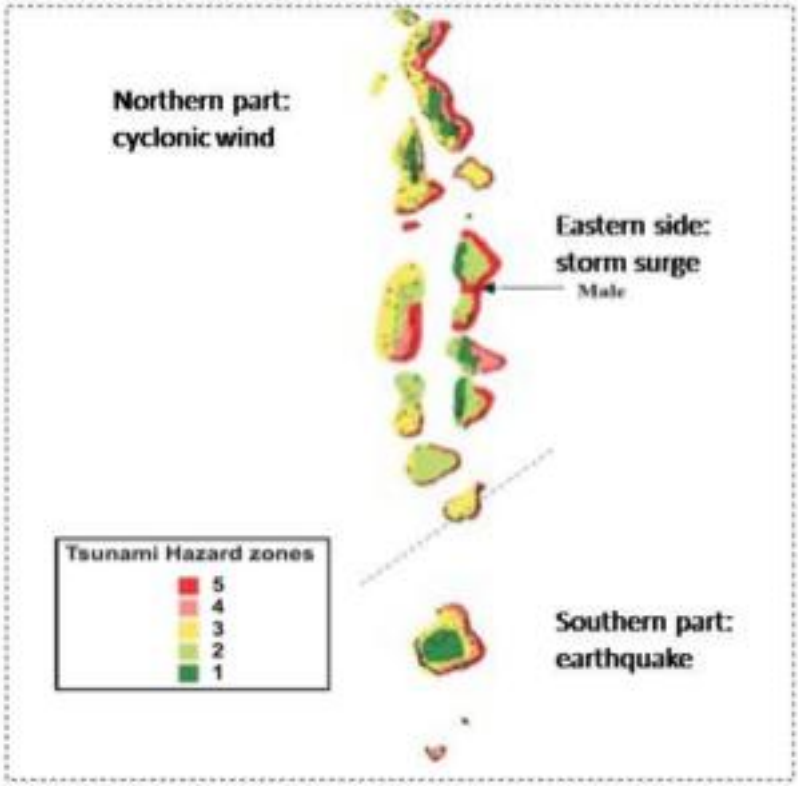
The Republic of Maldives is among the small island states classified as a least developing country (LDC). It has been identified as one of the most vulnerable to climate change impacts. The adaptation needs and options were identified through three regional stakeholder consultations and the First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) in 2001. The preparation of its 2006 National Adaptation Programme of Action (NAPA) began in October 2004 but was interrupted by the Indian Ocean tsunami (IOT). The Maldives would have left the LDC status in 2005 when this great disaster impacted the nation of 290,000 people.

The Maldives has rarely experienced a big disaster until December 2004 when the Indian Ocean tsunami caused economic losses of $470 million, which is 62% of the gross domestic product. Even though only less than a hundred deaths were reported, nearly one-third of the population were affected through loss or damage to homes, livelihoods and local infrastructure.

Since then, the country's main economic sectors, i.e. tourism, fishery and agriculture, have recovered. Nevertheless, the country faces constant threat by its very location and atoll structure. The key geophysical characteristics of the islands influence and predispose its propensity to natural vulnerability. Its geographic location near the equator in the Indian Ocean exposes Maldives to different natural hazards earthquakes (particularly the South), tropical cyclones, storms, thunderstorms, heavy rainfall, drought, floods induced by heavy rainfall, storm surges, swell waves, tsunami, and climate-related hazards such as accelerated sea-level rise, sea surface temperature rise, and changes in monsoon pattern.

Based on the disaster risk profile of the country prepared through technical assistance from the United Nations Development Programme (UNDP) in 2006, a simplified map shows the major hazards mainly due to geophysical characteristics and location (Figure 1).

Figure 1. Map of Maldives showing moderate to very high occurrence of selected hazards.



Note: The notations are made based on the 2006 disaster risk profile for Maldives. The 'base map' used here is a tsunami hazards zone map from the study. (RMSI. 2006 Developing a Disaster Risk Profile for Maldives, UNDP).

The UN Intergovernmental Panel on Climate Change (IPCC) forecasts that the seas are likely to rise by up to 59 cm by 2100, due to global warming. Most of the Maldives are just 1.5m above water and combined with issues such like beach erosion, water shortages, and limited shore defences, the tipping point disaster event for the Maldivians may come even earlier than current projections of 2100. Health emergencies in the past include cholera epidemic in 1978 and 1982, as well as Shigella epidemic in 1983. Increased rainfall has been linked to occurrences of dengue fever in the country.

Due to seriousness of weather variability and natural hazard risks, it has become necessary for the Maldives to be concerned about climate change adaptation and disaster risk reduction in all aspects of its development.

The Maldives has a radical economy-wide carbon neutral plan for the next 10 years (2019), the first and most comprehensive in the world. With its own SNAP, the nation will join the leading countries with a concrete strategy and action plan that links disaster risk reduction and climate change adaptation, drawn through broad-based multi-stakeholder consultations.

Disaster risk reduction action now can delay this inevitable crisis event by decades. Dealing with climate change and disaster risks decisively is the key to reducing poverty and achieving the Millennium Development Goals.
According to the Strategic Results Framework (formerly GEF Logical Framework), the goal is "to increase the resilience of the Maldives in the face of climate change and improve country capacity to respond effectively to climate related hazards."

In line with the goals of the new Government towards the attainment of "Aneh Dhivehi Raajje", or The Other Maldives, The Manifesto of The Maldivian Democratic Party – Alliance 2008-2013 [10], and guided by the Hyogo Framework for Action and the United Nations Development Assistance Framework (UNDAF), a multi-stakeholder consultative strategic planning process that will build upon the existing capacities and identify priority concerns and actions of the country on disaster risk reduction and climate change adaptation was designed. This process led to the development of the Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation (SNAP).

Every disaster presents financial challenges to an affected nation as well as assistance providers. The SNAP therefore not only manifests political commitment to optimize DRR and CCA countermeasures but also seeks to mainstream these into the budgeting process. SNAP is a road map using a multi-hazard risk management approach which is a potent driver to consolidate given meager means and resources.

2. The Maldives SNAP

2.1 Inception

In an agreement made during the meeting with President Mohamed Nasheed on 12 July 2009, the United Nations International Strategy for Disaster Risk Reduction (UNISDR) committed to assist the Government of the Maldives in the formulation of the country's Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation (SNAP) through a broad-based multistakeholder consultation. The mission team was led by the UN's champion for disaster risk reduction and climate change adaptation and the senior regional coordinator of UNISDR for Asia Pacific.

The new Government engaged the UNISDR to facilitate this endeavour and UNISDR, realizing a unique opportunity for Maldives to advance disaster risk reduction and climate change adaptation and adopt a pragmatic and innovative approach to help the island nation from typhoons, droughts, and rising sea levels. . The agreement was a commitment to work together to develop the SNAP for the Maldives, to conduct a partner's forum on translating the plan to action, and hosting a leader's forum to place the issue of disaster risk reduction and climate change adaptation atop the global agenda of the climate negotiations in December 2009 in Copenhagen.

2.2 Goals and Objectives

The Maldives SNAP aims to build resilience of the nation and the island communities to disasters. In keeping with the spirit of the Hyogo Framework for Action (HFA), the Maldives government adopted future outlook statements as summarized in its 2008 HFA Monitor [11]. The country thus positions itself:

- To sustain the progress in all fronts that have been initially achieved since government authorities have recognized the challenges;

- To consolidate actions to build resilient communities as Maldivians learn from nations that have developed mechanisms and learned from past experiences; and
- To incorporate risk reduction into the government's decentralization strategy.

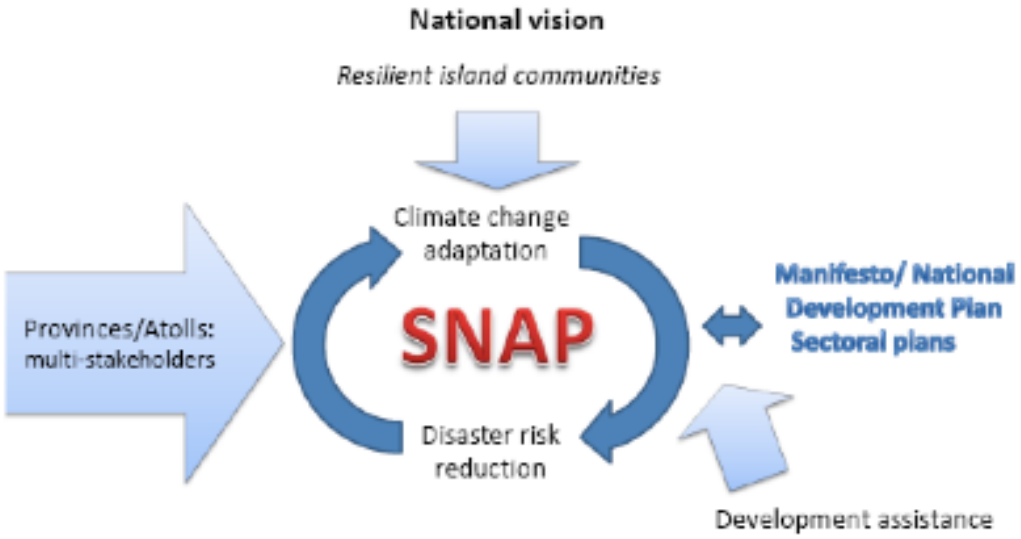
The post-tsunami recovery process has provided opportunities in terms of the following:

- Multi-hazard analyses that through the advocacy of international partners are being
- introduced into development and information policies;
- Training and field experiences which require reinforcement as capacity building continues;
- Significant engagement and partnerships with international non-governmental organizations (INGOs) and a few from the private sector but no mechanisms in place to help sustain these; and
- Application of international standards in reconstruction and rehabilitation processes but supporting policies are yet to be established.

The integration of human security and social equity approaches into disaster risk reduction were concentrated at the national institutions, the capital city of Male and its surrounding islands. The decentralization policy of the present Government has already seen positive changes to include other parts of the country. Affecting the future progress of achieving the goal of national and island resilience are how government institutions are to work together in terms of clear roles and working arrangements, as well as how the national and atoll governments can draw on partners' strengths.

In more concrete terms, the SNAP process will provide a means for the Maldives to identify a consolidated set of programs/projects that can be undertaken with the Government budget and those that may be considered for donor assistance and the Country Programme Action Plan (CPAP)/ Country Cooperation Strategy (CCS). It is harmonized with the policies and plans of the government as well as its decentralization strategy.

Figure 2. A contextual framework for the Maldives SNAP.



2.3 Concepts and Definitions

Disaster risk and climate adaptation terminologies

The language used by professionals in these fields differs slightly in the use of the term "mitigation." The International Strategy for Disaster Reduction (ISDR) defines mitigation as "the lessening or limitation of the adverse impacts of hazards and related disasters. The IPCC instead looks at the causes of climate change and therefore climate change mitigation is "a human measure to reduce the sources or enhance the sinks of greenhouse gases."

What is most relevant here is the word "adaptation." The climate change community calls disaster mitigation measures (such as training carpenters to build cyclone resilient houses, re-establishment of corals to limit the damage of tsunamis) "adaptation", specifically "reactive mitigation." Thus, adaptation in climate change covers broader and more comprehensive activities.

Disaster risk reduction (DRR) is essentially reactive adaptation. ISDR defines DRR as "the concept and the practice of reducing disaster risk through systematic efforts to analyse and manage the causal factors of disasters, including reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events."

Why "strategic"?

The use of the word "strategic" provides the "big picture" of national planning and action which can extend from five to 10 years. To make the strategic plan operational, government ministries and agencies based on their mandates may then give life to the strategic plan through specific programmes and projects which they will implement and/or oversee from one to five years. On the other end of the spectrum of actions, are the tactical activities which are undertaken by specific programmes and projects.

Strategic ----> Operational -----> Tactical

It is thus understood that the implementation of SNAP requires that ministries and agencies take ownership of the strategic actions. As these will be carried out by them, they shall take the role of drawing up or orchestrating the process of determining the details of project, which falls under their mandate. It shall be noted that often DRR programmes/projects are multi-disciplinary and multi-sectoral therefore the focal point partners with others which also have specific functions pertinent to the objectives.

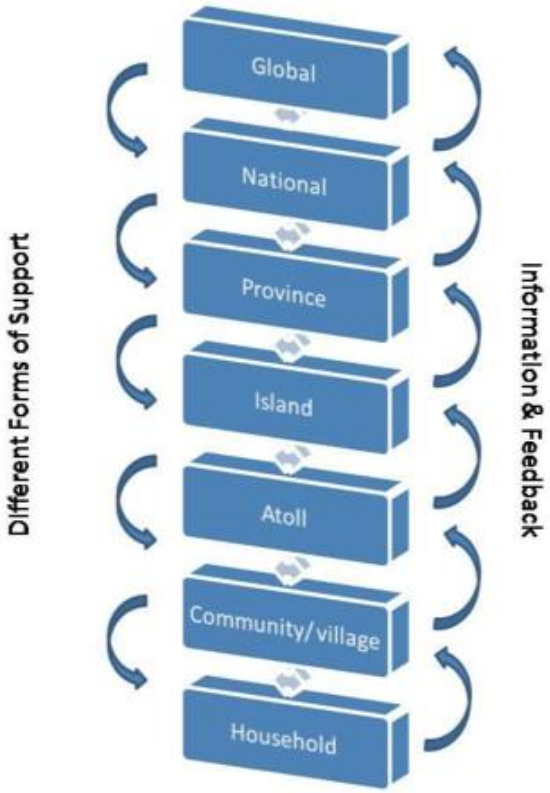
2.4 Guiding Principles

Everybody's Business

Disaster risk reduction is everybody's business. Therefore, the disaster risk management takes place at the most fundamental level of the household, on to the community or

village. Under the current local authority set-up, atoll councils and provincial governments are the most directly relevant to undertake disaster risk management functions. They represent the aspiration and needs of people who live in the islands that compose the atolls, and the atolls that in turn comprise the province. The national government provides the support needed to keep an effective disaster risk management going, while island communities monitor the environment and send feedback through the government channels. Finally, the regional and international (or global) institutions provide support needed to make policy decisions such as climate models or implement national strategies. At each scale, stakeholders collaborate to reduce disaster and climate change risk. (See Figure 3)

Figure 3. Disaster management scales and collaboration framework for the Maldives



Parties to the United Nations Framework Convention on Climate Change (UNFCCC) recognize that existing knowledge and capacity for coping with extreme weather events must be harnessed to adapt to climate change. The Bali Action Plan's directions for

adaptation call for the consideration of risk management and risk reduction strategies to address loss and damages associated with climate change impacts in vulnerable developing countries. Many of the principles and requirements for adaptation are highly relevant to disaster risk, particularly vulnerability assessments, capacity building, response strategies and integration of actions into sector and national planning. [12]

Risk Reduction and Adaptation Synergy

Climate change adaptation and disaster risk reduction (DRR) have similar aims and mutual benefits. However, to date the climate change and disaster risk management communities1 have operated large in isolation from each other - for a number of reasons. This situation must change as a matter of urgency.

Adaptation and DRR policy makers, experts and practitioners must communicate and collaborate with each other effectively to ensure a comprehensive risk management approach to development at local, national and international levels of government. This could result in the following benefits, namely:

1. Reduction of climate-related losses through more widespread implementation of disaster risk reduction measures linked with adaptation;
2. More efficient use of financial, human and natural resources; and
3. Increased effectiveness and sustainability of both adaptation and DRR approaches.

The Global Platform[13], in its deliberations during the second session, expressed the "overwhelming view" that "urgent action is required to harmonize and link the frameworks and policies for disaster risk reduction and climate change adaptation, and to do so within the broader context of poverty reduction and sustainable development'. A priority is to incorporate both disaster risk reduction and climate change adaptation as core policy and programmatic objectives in national development plans and supporting poverty reduction strategies and country assistance plans. Better preparedness for the humanitarian consequences of climate change is needed, including through early warning systems and local level adaptation. It was stressed that disaster risk reduction must be a concrete part of the deal on climate change that is sealed at the United Nations Climate Change Conference in Copenhagen in December 2009.

Closer collaboration on these issues is particularly critical as governments negotiate on the adaptation pillar of the post-2012 framework under the UNFCCC. DRR must be a key component of the post-2012 framework if an effective, sustainable approach to adaptation is to be achieved. Focus must be on improving communication and collaboration between the climate change adaptation and disaster risk management communities.

3. The Context

Stocktaking Towards the Development of the Maldives SNAP

The Maldives SNAP Project recognizes the commitment of the Government of the Maldives to initiate policies and measures, as well as to sustain and to build upon past gains, that contribute to the building and stabilization of a democratic system and that promote good governance.

The HFA and a participatory consultative approach were used to facilitate the identification of critical sectors and crosscutting concerns requiring policies that build resilience to natural and manmade disasters, the initial assessment of institutional capacities, available resources, weaknesses and needs.

The Project undertook a review of existing national and sectoral policies and initiatives with representatives of the Advisory Council on Climate Change of the President's Office, the National Disaster Management Center, the Environmental Protection Agency, the of the Ministry of Housing, Transport and Environment, the Department of National Planning of the Ministry of Finance and Treasury, the Ministry of Tourism, The Ministry of Fisheries and Agriculture, the Ministry of Health and Family, the Ministry of Education, the State Ministers of the Atolls.

An initial appreciation of the climate change and disaster risk reduction policy landscape was broadly outlined through a table review of documents on legal mandates, policies, plans and related efforts that the agencies undertook individually or in cooperation with

partners. The documents were provided mainly by the National Disaster Management Centre and by some concerned ministries, the donor community, and private sector partners. Other documents were secured from official websites.

Democratic Reform in the Maldives: The Context for the SNAP Process

The new government of the Maldives asserts its strong commitment to the vision of democratic institutions and to good governance through the MDP Ithihaad Manifesto [14]. Its bias for the democratic process is upheld by the SNAP process which encourages multi-sectoral participation and consultation.

As this complementation is recognized by the new government, it becomes apparent that the wide, focused and continuing engagement of government agencies in the SNAP process may be sustained .The multi-sectoral participatory and consultative process is geared towards promoting common understanding and deep appreciation, primarily among policy and decision makers of vulnerabilities, risks and opportunities. The SNAP may be utilized as a living document to be enhanced, discussed and refined for greater effectivity and contributions to the national aspiration of building a stable democratic environment for a resilient and progressive society.

The MDP Ithihaad Manifesto provides the guiding national vision and direction for the period from 2008-2013. In this light, the SNAP Maldives process endeavors to identify and integrate the timely concerns of climate change adaptation and disaster risk reduction into national policies, plans and programs to ensure the attainment of the ultimate vision. SNAP, utilizing the framework and tools of the Hyogo Framework for Action (HFA), primarily seeks to assist the national leadership in its task of developing appropriate and effective policies and measures for increased readiness to cope and to recover from extreme weather events that are predicted to increase in frequency and intensity over the next decades throughout the world.

3.1 Policy Landscape

Third Constitution of the Maldives

The Third Constitution of 2008 [15] sets forth the fundamental duties of the State and rights of the people in relation to the environment, the continued well-being of citizens, and their protection from hazards. As the most basic declaration of State policy, it provides the primary mandate for the enactment of enabling laws and the promulgation of policies to ensure the attainment of the highest national aspiration in the face of growing environmental and manmade challenges.

Article 22 of Chapter II of the Constitution asserts the fundamental duty of the State to protect and preserve the natural environment, biodiversity, resources and beauty of the country and upholds the people's rights and freedoms to such protection for the benefit of present and future generations. In accordance with this provision, the State shall undertake and promote desirable economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevent pollution, the extinction of any species and ecological degradation from any such goals.

Article 23 enumerates the rights of citizens and the duty of the State to achieve the realization of such rights by reasonable means within its ability and resources. The areas identified are food security, clothing, housing, health care, environment, access to communication, transport and natural resources, adequate sewage and electricity systems on every inhabited island.

Chapter XI places natural disaster on par with dangerous epidemic disease, war, threat to national security, or threatened foreign aggression as prerequisite for the declaration of a state of emergency by the President in all or part of the country for a period not exceeding thirty days.

The Constitution enshrines decentralized administration of the Maldives in Chapter VIII of the Constitution, empowering the President, as provided by law, to create constituencies, posts, island councils, atoll councils and city countcils. Laws shall be enacted to specify the jurisdiction and characteristics of constituencies, posts and councils thus created to provide for decentralised administration.

Specifically, Article 232 of the same chapter lists the responsibilities of councils elected to provide for decentralized administration, citing the provision of democratic and accountable governance, the fostering of social and economic well-being and development of the community, and the establishment of a safe, healthy and ecologically diverse environment, among others.

MDP Ithihaad Manifesto

The MDP Ithihaad Manifesto of the new government provides the guiding national vision and direction for the period from 2008-2013. It is the "roadmap" for the attainment of the objectives of the fundamental law of the land for the five-year period.

The Manifesto presents public grievances in five areas and proposes the policies and government actions to address them. It makes five pledges for the development of a nationwide transport system, affordable living costs, housing, and quality health care for all, prevention of narcotics abuse and trafficking. It asserts policies for good governance, the rule of law and justice, public sector reform, regional development and decentralization, elimination of corruption, pro-active foreign policy and social justice with respective short and long-term goals.

The leadership of Maldives seek these objectives for the establishment of a strong democratic foundation to support the effort of nation building for the continuing welfare of the people. Without these basic institutional reforms, officials believe efforts to protect the environment, to better the people's quality of life and to build disaster resilient communities will be futile.

National Sustainable Development Strategy (NSDS)

The NSDS supports the vision of the MDP Ithihaad Manifesto by identifying and developing actions to achieve competitiveness and economic prosperity, social cohesion, quality employment and better environmental protection, now and in the future. The path to sustainable development lies in the maintenance of the critical capital assets and continuous investment in expansion of the national wealth base.

The NSDS recognizes the importance of strengthening policy coherence and coordination. It promotes an approach to better policy-making based on the principle that sustainable development is to be integrated into policy-making at all levels, requiring all levels of government to ensure that major policy decisions are based on proposals that have undergone rigorous Impact Assessment (IA).

The NSDS establishes specific goals, objectives and targets the government, businesses and community must achieve together, as well as progress indicators to help measure success in achieving sustainable development.

It takes the carbon neutrality goal as the basis of all future policy targets, with special attention to the task of informing the public for the purpose of enabling all sectors to contribute to the achievement of carbon neutrality.

The following national sustainable development goals identified by NSDS may be translated into policies and strategic measures for climate change adaptation and disaster risk reduction:

1. Adapt to climate change
2. Protect coral reefs
3. Achieve carbon neutrality in energy
4. Ensure food security.
5. Establish a carbon neutral transport system

6. Protect public health

7. Achieve full employment and ensure social security.

Climate change adaptation is the focus of two basic planning documents of the Environment sector, the 3rd National Environment Action Plan (NEAP 3) and the National Adaptation Programme of Action. The implementation of these plans within a strong democratic system of government is expected to develop resilient communities as envisioned by the new Constitution, the MDP Ithihaad Manifesto and the NSDS.

Disaster Management Bill [17]

This proposed legislative measure seeks to establish the National Disaster Management Council, the National Disaster Management Authority, and the Disaster Management Steering Committee.

The Council shall provide guidance and approve all critical decisions on disaster management so that the entire government may act with dispatch in disaster response, risk management and mitigation, preparedness, relief and recovery. It shall also approve regulations and national plans drafted by the National Disaster Management Authority, and declare a State of Disaster.

The Disaster Management Steering Committee shall act as a National Platform for Disaster Risk Reduction and assist the Authority in the discharge of its functions to ensurean integrated and coordinated system of disaster management, with special emphasis on risk reduction and mitigation, by National, Atoll and Island institutions, statutory functionaries, communities, private sector, non-governmental organizations and other role-players involved in disaster management.

The National Disaster Management Authority shall make regulations, policies and plans on disaster risk reduction, manage relevant information, and act as an advisory and

consultative body on disaster issues. It shall make recommendations to the Council on draft legislation and the national plans, on the set-up of provincial, atoll/tourism/industrial/city and island disaster management committees, and the alignment of disaster management plans at all levels, and assist the Provincial Atoll and Island administrators in formulating local plans and programs. The Authority shall implement the national disaster plans and set up the Emergency Operations Centre that shall operate and maintain a multi-hazard early warning system.

The bill mandates capacity building at all levels, and the establishment of partnerships with organized communities and international organizations.

Maldives National Building Bill

Two case studies were conducted to ascertain the performance on environmenatally sustainable building norms in the Maldives, as well as the mechanisms that affect sustainability and the barriers to the adoption of sustainable construction practices. The study concluded that the concept is unknown to the general public and that the industry lacks a basic regulatory framework to govern building activities and the human resources for implementation. [18]

The Maldives does not have a national building policy and code. Initiated by the construction industry development sector together with the Ministry of Housing, Transport and Environment**,** the first draft of the Maldives National Building Bill seeks to address the problem of increasing unsustainable construction activities in the islands currently governed by traditional norms and unmonitored practices. It provides for an institutional mechanism for the development of legally binding national building rules and regulations, standards and procedures. It also enumerates the duties and responsibilities of builders, developers, site supervisors, and building owners and imposes sanctions and penalties on persons who commit prohibited acts.

3.2 Institutional Landscape

National Disaster Management Centre (NDMC)

The National Disaster Management Centre (NDMC) seeks a strong mandate for disaster risk management to support the fulfillment of the key pledges and the implementation of the policies for good governance of the MDP Ithihaad Manifesto. Towards this end, it shall promote the establishment of a legal framework and enhanced capacity for national disaster management.

The NDMC is awaiting the passage of the proposed legislation on disaster management which will address constraints and emerging issues including weak horizontal linkages among national agencies, poor flow of DRR and CCA information, the emergence of new support structures, and the unutilized potential of media.

Established on the 26th December 2004, immediately after the tsunami, it coordinated all the emergency relief work. Priority was given to collecting data through field assessments, processing it and disseminating across the country in order to generate information on affected people, damage and loss. The Ministries of Defence together with Finance and Treasury (MOFT) and Planning and National Development (MPND) led the operations with the logistical support of National Security Services (NSS). [19]

All government authorities were instructed to extend their full assistance and cooperation to the NDMC. On February 2006, it was established as a permanent institution with the mandate to coordinate disaster response, relief, repair of damaged infrastructure and management of temporary shelters, and to formulate and implement disaster awareness programs.

To achieve the objectives of disaster management, the NDMC shall serve as the National Platform [20] to coordinate multisectoral DRR activities in the Maldives and lead disaster relief efforts and HFA implementation. Confirming that strong linkaging to climate change

adaptation may benefit the performance of its proposed mandates during the focus group discussions and workshops of the SNAP Maldives process, the NDMC shall formulate and implement awareness raising programs on DRR for Climate Change Adaptation.

Department of Meteorology [21]

The Department of Meteorology is responsible for the collection, analysis and dissemination of meteorological and seismic information to support the development and implementation of sound policies and programs. In assisting climate change adaptation and disaster risk reduction efforts, MMS collaborates with key government agencies in the development of integrated policies and programs by providing risk mapping, scenario building and modeling services.

It operates a national meteorological network comprised of the National Meteorological Centre in Male' which issues daily forecasts and all kinds of aviation and marine forecasts, and weather warnings 24 hours daily, the Meteorological Offices in Haa Dhaal Hanimaadhoo and Gaaf Dhaal Kaadedhdhoo which make daily synoptic and aviation reports, the Meteorological Office in Laamu Kadhdhoo which make daily very basic surface and aviation reports, and in Seenu Gan where observations are done 24 hours daily. Tide gauges are installed in Male', Haa Dhaal Hanimaadhoo and Seenu Gan.
At present, the Department lacks hardware for climate database management and stations in most atolls. It must acquire automatic weather stations especially for monitoring and prediction of flash floods. There is a shortage of skilled and competent meteorologists because tertiary education in meteorology is not locally available. [22]

The Department aspires to build capacity for advanced level of technology required to develop a sound meteorological information base and to update the existing climate scenario and risk model to reflect recent local and global findings. For improved access to the latest information, the Department should establish a network of experts and institutions. It shall endeavor to translate vital scientific findings for the appreciation of policy and decision makers.

Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) is the agency responsible for administering the EIA regulation on behalf of the Government of Maldives and has the mandate to carry-out monitoring of approved EIA activities during the project lifecycle and thereafter. [23]

Having assumed the mandates of the Environment Research Centre and the Maldives Water and Sanitation Authority, the EPA is now responsible for the regulation of production, use, import, export and sale of water, development of water standards and guidelines for waste water, use of water, development of strategies for wastewater service industries, scientific research on water resources.

Linked to the Ministry of Housing, Transport and Environment, it is a regulatory authority administered by a governing board. It implements the World Bank-assisted Maldives Environmental Management Project which shall establish a regional solid waste management program for the North Province, provide capacity building for environmental management, and technical assistance for a pilot regional strategic environmental assessment enhancing environmental management through the collection and use of data.

The EPA recognizes that disaster risk reduction and climate change adaptation measures need to be mainstreamed in the EIA process and the wastewater and solid waste management programs. [24]

3.3 National Plans and Programs

Third National Environment Action Plan (NEAP-3) [25]

"With the introduction of a decentralised system of governance based on seven provinces in the Maldives – the thrust of implementation would be at provincial and atoll levels. Environmental management responsibilities would become a key function of provincial offices and atoll offices and the NEAP-3 seeks to build the capacity for environmental management at the local level," said Mohamed Aslam.

The NEAP-3 sets the agenda for environmental protection and management in the Maldives for the five year period 2009 – 2013 to create prosperous, liveable and sustainable places that are an integral component of the development vision of the nation, the protection of the natural environment and making people and property resilient. The principles of individual responsibility, result-oriented actions, sustainable development, local democracy, inter-sectoral coordination and cooperation, informed decision making, precautionary action, continuous learning and improvement, right to information and participation of citizens, and complementation of environmental protection and development are adopted by NEAP-3.

The success of NEAP-3 is expected to give rise to resilient islands, rich ecosystems, healthy communities, safe water, environmental stewardship, and a carbon neutral nation. NEAP-3 provides the basis for environmental planning, budgeting, performance measurement, and accountability. The performance against these goals and targets will be included in annual reports to Parliament.

National Adaptation Programme of Action (NAPA)

The first National Adaptation Programme of Action (NAPA) was developed to communicate the most urgent and immediate adaptation needs of the Maldives to the UNFCCC. NAPA preparation, begun in 2004 with support from the Global Environment Facility (GEF) and United Nations Development Programme (UNDP) and halted because of the South Asian tsunami of December 2004, was revived in February 2006. [26]

The NAPA process adopted the principles of broad stakeholder engagement, partnership building among focal agencies and ownership by the people of Maldives especially the atoll population. Targeted awareness raising and activity-based learning was conducted for school children from five secondary schools. Existing climate data for the Maldives was analysed with international expertise, culminating in the first Climate Risk Profile for the Maldives. National experts produced vulnerability and adaptation (V&A) related technical

papers for priority sectors identified by the NAPA Working Group. Extensive consultations at regional and national level were undertaken based on a prior agreed methodology to identify vulnerabilities and adaptation activities and to prioritize these activities.

The NAPA describes the National Adaptation Policy Framework, in particular, interactions among climate hazards and risks; exposure and vulnerability of the systems; desired sustainable development outcomes; and adaptation strategies, country characteristics, national development goals, and climate hazards and risks peculiar to the Maldives. On the basis of analysis of vulnerabilities and the biophysical impacts of climate change, NAPA identifies the adaptation needs and priority activities and projects.

Sustainable societies are those that have devised mechanisms to help reduce or mitigate risk and cope with the effects of shock. The focus of the adaptation framework is on climate change related hazards, risks and shocks and what the Maldives will do to cope with them. The assessment of these hazards is based on the Climate Risk Profile of the Maldives, the Disaster Risk Profile of the Maldives and the IPCC Third Assessment Report. Other types of risks such as growth collapse, balance of payments, financial crisis and technology or trade induced shocks are also shown in the framework which may impact the vulnerable systems concurrently and hence future adaptation outcomes.

The second component, vulnerable systems, are characterized by high vulnerability through exposure to different specific climate hazards, as well as being strategically important at national level and across natural, human and produced systems. The NAPA description of the vulnerability of these systems is based on a synthesis of scientific and technical vulnerability assessment studies that have been conducted in the Maldives since 1987 and the V&A assessment contained in the FNC in 2001.

The climate scenario developed by NAPA also considered the goals of the Seventh National Development Plan (7NDP) as the bases for understanding the sustainable development outcomes for the Maldives.

The fourth component of the adaptation policy framework comprises the adaptation strategies, or the decision processes for maintenance, replacement and renewal of the systems. Replacement would not automatically take place and deliberate investment decisions are needed. On the other hand, climate change poses dangers or irreversible losses to critical systems. Hence, a policy of prudent insurance is needed to be made on the basis of signals on the status of the systems, the hazards and risk levels, how society currently uses the systems, and how the society has coped with risks in the past.

NAPA identifies the adaptation needs of the various sectors. For human health, for example, these include the strengthening of regulatory and institutional capacity for vector control, medical emergency response, and capacity for health care delivery, the promotion of healthy lifestyles and communities, and of research and disease information dissemination.

The signals on the adaptation needs of the society and the relative values of the adaptation strategies were obtained through carefully planned expert analysis and regional and national level stakeholder consultations. The key adaptation needs as identified and prioritised by stakeholders are listed in Annex E.

The final component of the adaptation framework is the barriers to implementation. There are several socio-political shocks and stresses such as political instability, social upheaval and terrorism that could affect speedy implementation of national adaptation activities. Such shocks have a tendency to alter and reshape national priorities over the short and medium-term. Natural shocks such as tsunamis, storms and epidemics also reshape priorities in the short-term.

The NAPA identifies weak institutions without strategic direction and human, financial and technical resources to implement them and the lack of knowledge, education and awareness among the public on the science and impacts of climate change as the key barriers to implementation of adaptation strategies. It presents profiles of projects designed to remove barriers to long-term adaptation to climate change in the Maldives.

Among the priority follow-up projects to NAPA are those that address coastal protection and the protection of homes and settlements.

There is a strong government commitment to DRR and CCA as likewise demonstrated in various programs, including the Safer Islands Programme (SIP), the consideration of identified risks from the Climate Risk Profile, Disaster Risk Profile and the Detailed Island Risk Assessment I and II in the NAPA.

The recent establishment of new institutions with specific mandates for DRR and CCA that have direct access to the President's Office like the NDMC and the Presidential Advisory Council on Climate Change creates an unprecedented opportunity for the promotion of this agenda. The Advisory Council of 15 environment and energy experts will provide the Government with advice on how to reach the carbon-neutral target in 10 years as well as coordinate the development of sectoral and local action plans of the government. [27]

The proposed health sector plan hews closely to the new Government's decentralization, corporatization and privatization policies. It proposes the delivery of health services through Public Private Partnerships and their management by corporate bodies at provincial levels. Primary Health care will be revitalized with a focus on preventive health in national health policy and through empowerment of communities to make local decisions at island and atoll levels through political and administrative decentralization.

The commitment of the sector to "provide affordable and quality health care for all" through a world class, health care system by improving the quality of health services; establishing better connections between islands and high quality regional centres; assuring health care training opportunities to Maldivians; reducing the costs of health care; setting up an inclusive health insurance system; and inviting private investment in health.

3.4 Progress in Implementing the Hyogo Framework for Action

The Hyogo Framework for Action (HFA) is centered around three principal strategic goals, the first of which is the more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels. Other

objectives relate to the development and strengthening of institutions, mechanisms and capacities to build resilience to hazards and the systematic incorporation of risk reduction approaches into implementation of emergency preparedness, response and recovery programmes.

As the HFA focal point, the NDMC monitored the country's implementation of the HFA for the period 2007-2009. In its report, *Maldives National Progress Report on the Implementation of the Hyogo Framework for Action, NDMC- MDNSS, June 2009,* [28] the following progress along the strategic goals of the HFA was cited:

HFA Strategic Goal 1: More effective integration of disaster risk consideration into sustainable development policies, planning and programming at all levels

The major shift in policy focus from the traditional orientation of "Relief to Preparedness and from Rehabilitation to Mitigation"* was noted in 2008. This created an opportunity for the entry of initiatives towards more effective integration of disaster risk considerations into sustainable development policies, planning and programming. Notably, the draft Disaster Management bill which would provide a platform at all levels to address disaster risk reduction was being finalized. Other initiatives included the proposed 'Safe Island' concept for climate change adaptation as presented in the 7th National Development Plan, the NEAP 2 which identified issues to be addressed by proper environmental management, and the NAPA which would be the countrywide program for immediate and urgent climate adaptation activities drafted under the Integrated Climate Change Strategy.

Sectoral initiatives include the policy direction for national disaster preparedness at all levels of the Health Master Plan for 2006-2015, the inclusion of Disaster Mitigation in the Tourism Master Plan, the development of a Disaster Management Plan for Tourism, the policy guidelines of the Education sector on safety for children, and the Telecommunications Emergency Communications Plan of the Government.

HFA Priority Area 2: The development and strengthening of institutions, mechanisms and capacities at all levels. Particularly at the community level, that can systematically contribute to building resilience to hazards.

The report cited the establishment of the National Disaster Management Centre as the focal point for facilitation and coordination of response, relief and recovery activities led by the Ministry of Defense and National Security, Ministry of Finance and Ministry of Planning and National Development.

The NDMC now follows a more holistic model for addressing vulnerability within a risk management context. The processes of hazard identification and mitigation, community preparedness, integrated response efforts, and recovery are now planned and more than 200 government workers have undergone local and international training in basic concepts of disaster management. Community preparedness plans have been developed in 30 islands and disaster management task forces instituted with training on basic emergency response as part of the Community Based Disaster Programme.

HFA Priority Area 3: Systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities

The high national priority accorded to disaster risk reduction in the National Recovery and Reconstruction Plan and the 7NDP was mentioned

The study notes some progress in formulating national policies and legal frameworks for disaster risk reduction and identifies the current weaknesses and constraints. The delay in the enactment of a legal framework by the Parliament and the lack of human, financial and other capacities for the functioning of a national multi-sectoral platform to implement DRR plans and activities at all levels emerge as the major barriers. Being in a transitional stage of decentralization, the local governments which must plan and implement disaster

risk reduction on the ground must wait for the traditional participatory system of atoll self-governance known as 'yaaru' to be revived.

Learning from the successes of the health sector in the H1N1 preparedness initiative, the establishment of disaster management units in key sectors is underway for the identification, assessment, and monitoring of disaster risks, and for the enhancement of early warning systems. Risk assessments like the Disaster Risk Profile and the Detailed Island Risk Assessments based on hazard data and vulnerability information are available. 'DesInventar', an inventory system on disasters, and the Maldives Disaster Reduction Network have been initiated while the Meteorological Department has provided data when requested.

Mainstreaming Disaster Risk Reduction and Climate Change Response in National Policies, Programs and Plans

The Third Constitution of the Maldives, the MDP Ithihaad Manifesto, and the National Sustainable Development Strategy provide the statements of the highest national policies and priorities of the Government of the Maldives. From these basic statements shall emanate the directions and guidelines for all sectors and activities in the land, including disaster risk reduction and climate change adaptation.

The National Development Plan for the current planning period and its public sector investment plan are presently being reviewed and revised to conform with the pledges of the MDP Ithihaad Manifesto and to mainstream disaster risk reduction and climate change adaptation into all plans and programs.

These same documents also provide the rationale for disaster risk reduction and climate change response, thereby laying the policy foundation for strong collaboration and close communication among various government agencies towards a holistic and integrated approach.

3.5 Advocacy and Commitment

The Second Session of the Global Platform 2009 highlighted support to target 10% of humanitarian relief funds to disaster risk reduction work. Similarly, a 10% figure has been proposed as a target share of post-disaster reconstruction and recovery projects and national preparedness and response plans. Calls also were made for at least 1% of all national development funding and all development assistance funding to be allocated to risk reduction measures.

The Maldives has taken a dual approach to sustainable development: short-term adaptation to changes in climate change risks and long-term, global commitment to mitigation. This is a pioneering effort; only recently has collaboration and information exchange really warmed up between the climate change adaptation and disaster risk reduction communities. Even the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCC) recognize the need for the disaster risk reduction context in climate change measures. DRR must be a key component of the post-2012 framework of the UNFCCC. It must also be borne in mind that the Bali Action Plan (Sub-paragraphs 1(c) (ii,Iiii) recommends that national mechanisms to link and coordinate adaptation with disaster risk reduction policies be developed.

Maldives is an original member of the G-77 constituted in 1964 when 77 developing countries adopted a common declaration at the end of the session of the United Nations Conference on Trade and Development (UNCTAD). The G-77 has successfully advocated for the inclusion "for developing States" in order to meet the needs of the members, especially in technical and assistance. Maldives leads negotiations on adaptation in behalf of G77/China. It is an active participant in preparing for negotiations together with least developed countries (LDCs) and the High-Level Climate Summit of the Alliance of Small Island States (AOISIS)

Besides negotiations on adaptation, Maldives has commitments through multilateral environmental agreements (MEAs) such as the United Nations Convention of Biodiversity.

As a member of the South Asian Association for Regional Cooperation (SAARC), Maldives hosts the SAARC Coastal Zone Management Centre and actively participates in technical meetings organized by the SAARC Disaster Management Centre.

4. Multi-stakeholder Consultations and Outcomes

4.1 Process Approach

Inputs to the SNAP process to date were obtained through a review of documentation, interviews, and two groundbreaking consultations. The consultations consisted of: (1) focus group discussions (FGDs) with different economic sectors, ministries, held between 16-18 August 2009, and (2) a consultative leadership workshop of local government officials on 19-20 August 2009. In both, the newly formed Maldivian Red Crescent and the UN Country Team were engaged. For most that represented the private sector, it was the first opportunity to participate in such forum, and the consultation was much welcomed. A second round of consultations was undertaken between 28 September and 4 October 2009. (Participants in the consultation process are listed in Annex A.)

As a tool for strengthening the national platform for disaster risk management, wide stakeholder participation was required for the focus group discussions. The FGDs provided the appropriate entry points for participating sectors into the SNAP process and basic primary information about their concerns and capacities in DRR. The FGDs augmented information gaps resulting from the dearth of formal documentation, allowing the participants to proceed into the advanced phases of the process towards the finalization of the plan of strategic actions to reduce disaster risk. Strategic planning techniques (stakeholder analysis; SWOT, i.e. strengths-weaknesses-opportunities-threats analysis) essentially provided the tools to generate the areas that would bring about achieving the goal of national and island community resilience with timeframes in mind.

Proposals coming from the stakeholders are fashioned into goals and objectives that are constituted as guide for the coming years. Although these proposals are addressed mainly to policy makers, the SNAP is also a road map to guide the plan implementers – specifically government ministries and agencies– to formulate projects and programmes, and thus engage their potential partners (private sector, non-governmental organizations, citizens).

In this provisional draft plan, strategic areas are defined as those areas where national and local policies have a major role. Eventually, in order to respond to the specific issues in these strategic areas, government needs to deal with them in a strategic way, i.e. programmed over identified time frames with goals, objectives and targets.

These issues are then turned into solutions or countermeasures. It is then the next step to recognize which entity should be mobilized and which other stakeholders might be able to provide or share human (people), financial (money), management, time, and material resources (equipment).

4.2 Consultations

NDMC with the support of the UNDP Country Office and UNISDR held consultations with government, quasi-government, NGO, and private sectors in two stages. The first stage (August 18-22) consisted mainly of focus group discussions, the two-day Consultative Leadership Workshop for SNAP (August 19-20) and interviews. For the second stage (September 28– October 4), validation meetings and key informant interviews were held with high-level officials of national agencies, key climate change government officials, and the international donor community.

Document Review and Consultation Meetings

The NDMC together with a UNISDR mission reviewed key policy documents, key past country assessment reports, as well as holding consultations with the UN Country Team

(United Nations Development Programme, World Health Organization, United Nations Children's Fund) and stakeholders in Male. Key policy and plan documents considered, included:

- The Manifesto Of The Maldivian Democratic Party – Alliance 2008-2013
- Climate Change Strategy, 2009 (Ministry of Housing, Transport and Environment)
- Maldives National Strategy for Sustainable Development (2009)
- Framework on IDP Management in the Maldives
- Seventh National Development Plan, 2006-2010 (7NDP)
- National Adaptation Plan of Action or NAPA
- Third National Environmental Action Plan, 2009-2013 or NEAP 3 (Ministry of Environment, ME)
- Third Tourism Master Plan, 2007–2011 (Ministry of Tourism and Civil Aviation, MTCA)
- National Recovery and Reconstruction Plan, 2005 (Ministry of Planning and National Development, MPND)
- Tourism Sector Development Plan, 2005 (MTCA)
- Island Livelihood Revitalization and Development Programme (ILRDP), 2005 (Ministry of Finance and Treasury (MOFT)/The Bank of Maldives (BML)
- Constitution of the Republic of Maldives (Functional Translation, 2008)

Key past assessments and reports reviewed included:

- National Progress Report on the Implementation of the Hyogo Framework for Action, 2009 (NDMC)
- Medium Term Review of 7NDP, 2008 (Ministry of Planning and National Development)
- Detailed Island Risk Assessment in the Maldives (DIRAM I & II), 2007 (Disaster Risk Management Programme, UNDP Maldives)
- Disaster Risk Profile in the Maldives, 2006 (UNDP/RMSI)
- MDG Maldives Country Report 2005 (Ministry of Planning and National Development)

- Vulnerability and Poverty Assessment, 2004 (Ministry of Planning and National Development)
- Maldives Post-Tsunami Environmental Assessment (United Nations Environment Programme)

Understanding the role of the power sector in DRR and CCA, UNISDR consultants met with senior officials of the State Electric Company Limited (STELCO), who could not participate in the focus group discussions. The main purpose of the meeting on August 20, 2009 was to identify key issues related to disaster risk management at all levels which need to be considered when designing the SNAP.

Focus Group Discussions, August 16-18, 2009

The FGDs conducted on August 16-18, 2009 were the initial venues for consultations with key stakeholders on the critical issues and concerns, gaps and needs, and possible approaches and courses of action (Annex B). The three FGDs convened close to 100 representatives from Health, Education, Media, Construction, Telecommunications, Aviation (Air Transport), Tourism, Planning/Finance, Warning services, Police, MNDF as local participants and UN Country Team, International Federation of Red Cross and Red Crescent Societies(IFRC), and UNISDR as international participants. The FGDs provided information for a subsequent consultation workshop on August 19-20, 2009 with national and local authorities. Participants were identified in coordination with the National Disaster Management Centre (NDMC).

It was important for participants to level off in terms of information updates. For instance, a Civil Defence Act is being mulled over by top officials even as a draft Disaster Risk Management bill has undergone extensive consultations. Apart from the achievements of the Maldives on the implementation of the HFA stated in its national progress report in June 2009 therefore, new realities being faced by the stakeholders are bound to affect the future of DRR. The changing institutional landscape is largely dependent on the passage of the Disaster Risk Management bill, which embodies the legal framework for the

country's DRR and strengthening of the National Disaster Management Centre. The NDMC is currently under the Ministry of Housing, Transport, and Environment however a new Civil Defence Act may affect institutional arrangements.

The FGDs achieved the following:

- Increased awareness on status, lessons learned, challenges and gaps disaster risk reduction (DRR)/ climate change adaptation (CCA) through multi-stakeholder information sharing
- Opened dialogue among public & private entities, multiple sectors, regulators & implementors
- Generated recommendations relevant to the sectors.

Specifically, highlighted were:

- Significant gains in education
- Weakness in horizontal linkages
- Poor information flow
- Unutilized potential of media
- Opportunities for networking (e.g., health) and mutual learning (e.g., aviation)
- State of flux in government/ growing pains of decentralization
- New structures (e.g., Maldivian RedCrescent).

At the end of the three days, it became evident that the SNAP has potentially provided the window for:

- Consolidating current and upcoming national-level disaster-related plans (ex. Disaster Management Plan for the Tourism Sector (2005), Health Master Plan 2006-2015, Emergency Communication Plan as part of the government's telecommunications policy)
- Providing means for the Maldives to present a programs/projects that may be considered for donor assistance and the Country Programme Action Plan (CPAP)/ Country Cooperation Strategy (CCS)

- Synchronizing efforts and enhancing what is working.

The Consultative Leadership Workshop for SNAP, August 19-20, 2009

The Consultative Leadership Workshop assembled local and national officials, as well as other stakeholders such as IFRC and the UN (Annex C). Participants were mostly local officials (60%) such as Provincial State Ministers (or their deputies) and Atoll Councilors.

The objectives of the Workshop were:

- To create awareness and understanding of the rationale and process of SNAP among key Government officials;
- To discuss key issues, challenges, and strategies in building national and local capacity for disaster risk reduction and climate change adaptation; and
- To formulate and adopt a framework for drafting SNAP.

This workshop was one form of multi-stakeholder dialogue in the process of generating a road map for disaster risk reduction in the Republic of Maldives (Annex D). The participatory workshop allowed the local government officials and the other participants: to level off in terms of the current status of disaster risk reduction in the nation and their local governments, achievements, sound practices and lessons learned; to reach a common understanding of gaps in capacity in order to attain the goal of safe island communities through disaster risk reduction and climate change adaptation; and to agree on future strategic actions with their respective timeframes, collaborators and resources needed.

The participants were grouped into five where each group discussed an issue domain that corresponded to the five Hyogo Framework for Action (HFA) Priorities for Action:

- Governance;
- Risk Assessment and Early Warning;

- Knowledge Management;
- Risk Management and Vulnerability Reduction; and
- Disaster Preparedness for Effective Response.

Table 1. The Priorities for Action for the Hyogo Framework for Action (HFA)

HFA Priorities for action:

1. Governance
   Ensure that climate change impact and disaster risk management are national and local priorities with a strong institutional basis for implementation

2. Risk assessment and early warning
   Identify, assess and monitor disaster risks and enhance early warning

3. Knowledge management
   Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

4. Vulnerability reduction
   Reduce the underlying risk factors

5. Disaster preparedness
   Strengthen disaster preparedness for effective response at all levels

Through a strategic planning technique called SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis, each group delivered outputs in three sessions, from which an output was derived. In the process, the internal environment (strengths and weaknesses) of the entity and the external environment (opportunities and threats) surrounding the entity are analyzed. In this manner, capacities and gaps are assessed.

Session 1: Where We Are Now? Output: Matrix of strengths, weakness (limitation), opportunities and threats – wherein participants identified strengths and weaknesses, opportunities and threats of his/her organization in undertaking DRR;

Session 2: Where Do We Want to Go from Here? Output: SWOT Analysis Matrix of strategic actions for each thematic area of the Hyogo Framework of Action identify strategic actions that address priority concerns in DRR by relating strengths and weaknesses with opportunities and threats, considering continuation, expansion, and improvements of current activities, considering trends and latest developments, identifying new partnerships and resources that can be tapped;

Session 3: How Do We Get There? Ouput: Plan Worksheet, which consolidates strategic actions into tangible strategic areas with objectives, activities, lead and partner agencies, timeframe (short-term, medium-term, long-term), and additional notes relevant to the strategic area.

4.3 Capacities and Gaps

Through the process described, capacities and gaps in DRR were identified by the participants. Some participants recalled the post-tsunami response and reconstruction had many pitfalls. Some honestly expressed apprehension about the level of preparedness of island communities and response agencies in case a hazard of a magnitude such as the IOT comes to the country again.

The participants felt that intrinsic to the country are the strengths of common language, religion, and culture; an ocean-friendly people with the ability to swim. However, the atolls have by nature low-lying islands that expose communities to the threat of beach erosion, sea-level rise and other climate change impacts. In terms of disaster response and day-to-day business, the distance between many islands present a significant challenge.

Positive comments on the favourable political environment brought about by change of government singled out the following:

- Decentralization and formation of seven provinces
- Clarification of mandates as part of the decentralization process
- Political will ("new government with strong commitment")
- No media censorship
- Initiating the development of a reliable inter-island transport network.

A lot of work in progress was captured in the consultation process. Awareness about standard operating procedures (SOPs) was manifested in both statements and questions about them in various agencies. In early warning communications, progress in SOPs has been made but yet some improvements are needed.

Other positive developments pertain to the on-going activities to incorporate of disaster risk reduction into the school curriculum and Implementation of proper waste management. A much-improved early warning system (EWS) is expected to be in place after one year.

As far as the development of a multi-disciplinary and multi-sectoral platform, the H1N1 pandemic preparedness initiative in the country is providing an opportunity towards evolving a type of homegrown system for disaster risk reduction. Both government and private actors in the health sector are, for instance, in constant dialogue.

While the presence of NGOs is not strong in the Maldives, the private sector represents the non-public sectors. Often most resources (particularly, material and equipment resources needed for post-disaster relief and response) are with the private sector. Being so, it is therefore essential that information about the resources of construction companies are identified or listed through their association. The list could be made ready within two months so this is a concrete contribution of the construction industry to fight disasters.

This also point to a gap in terms of mapping out all available resources for emergencies in order to make a useful contingency plan for hazard scenarios.

At the national level, well-trained, that personnel of the MNDF are experienced and respected is recognized as a strength. While in the provincial and community level, the use of resources within the island communities and provinces are also considered essential. Thus, opportunities for partnership with private groups such as dhoni operators, taxi centres, resort management promoting awareness in environmental conservation as part of their corporate responsibility, religious clerics (through public announcement in mosques, for example) are suggested. Information and technology channels are recognized as instruments in the DRR effort. In the area of information, resources range from the climate agency information hotline for public (and fisherfolk) to mobile phones. The Maldivian Red Crescent is perceived not only as a national stakeholder but also as 'community –level partner' by the local officials.

Regional differences do exist among the provinces; therefore at the Consultative Leadership Workshop, variations in the level of resource availability, infrastructure provision, and community solidarity emerge as a hard fact. Middle North and South Provinces consider hospitals among their strengths. The potential contribution of NGOs in Hithadhoo, South Province is recognized.

It became evident therefore that in islands and provinces, or island communities have poor access to resources like information and technology leaving these untapped. Community involvement or participation was found dependent on the willingness of community to adapt to change. The roles of media (radio, TV, etc.), higher learning institutions, religious clerics are yet to be made use of in the area of DRR. Collections of DRR experiences and lessons learned from other countries especially small island nations are seemingly not tapped to provide input to knowledge within.

Gaps in building codes, education, protective shelters (evacuation), protection of critical infrastructure (such as airport), insurance, contingency planning, among others remain to

be filled. Despite the disaster-related plans already in place in some sectors, horizontal linkages among the actors and gaps remain to be filled.

Coordination among disaster response players and stakeholders are found wanting in the area of aviation accidents, for instance. As commitment to the International Civil Aviation Organization (ICAO), a full emergency exercise at the airport needs to be conducted every year. In the simulation organized in June 2009 by Maldives airport authorities with a scenario of a 300-passenger aircraft accident on land, hospitals were found unprepared for such a scale of an emergency. Transport between airport and Malé was another difficulty. Therefore, the airport authority, the police, hospitals, rescue teams, and media need to be involved to prepare for emergencies.

Professionals in the construction industry feel they should do their share in DRR through disaster resilient construction, however cost considerations of safer construction must be taken in account. While building contractors may become a force in risk reduction for incorporating DRR principles into practice, people (their clients) may not be able to afford retrofitting or building safe dwelling units.

Concerns remain high in terms of offsetting the threats of negative socio-economic impacts of hazards and thus, sectors like tourism and fisheries, which comprise about 40% of the national output, require attention. Realizing this, the level of cooperation from resorts is expected to be high, especially by way of consultations with government and relevant stakeholders. Current arrangements in EWS have four (4) people assigned in the MMS to link with the resorts all over the islands. Work remains to be done in the area of establishing a simultaneous communication system as part of the DRR work of the Ministry of Tourism, Arts and Culture.

Contingency planning is a critical area which industrial representatives from telecommunications and construction sectors needed to be addressed. This puts a lot of responsibilities on the NDMC, but also opens opportunities for partnerships with NDMC as a 'conductor.'

Several DRR/CCA projects are on-going or otherwise in-the-pipeline. There are feasibility study projects of a back up airport in case of an emergency. Proposals for specific agreement to obtain support from neighbouring countries in case of an emergency are being discussed while agreements already have been made with India, the South Asia Association of Regional Cooperation (SAARC), the U.S. and Australia. Steps are being taken for legal preparedness in accepting humanitarian assistance.

The Early Warning Systems now in place was tested on 15 August 2009 using an earthquake scenario. The simulation proved to be a good exercise for the Maldivian stakeholders from the receipt of the early warning report, doing the risk analysis to consequent decision taking.

In a decentralized system of government, local authorities are expected to play a significant role in delivering services and looking after the welfare of citizens. Some islands and provinces are yet to establish disaster management committees. The post-tsunami recovery process has resulted in social disparity in some island communities. Capacity building among local authorities and communities is urgently needed to address issues concerning the sense of ownership, the level of awareness and interest in DRR, risk knowledge and ultimately preparedness. It is thus recognized that an effective communication mechanism that eliminates or reduces misinformation must be put in place. Actions ranging from revitalization of youth programmes to risk-sensitive land use planning have been identified in the dialogues. The expectation for international support to put the needed programmes and projects in place and to implement them is also high.

4.4 Challenges

Lessons learned from the post-tsunami recovery process remain to be reinforced for the gains of future generations of Maldivians. Dichotomies that threaten to weaken positive impacts need therefore to be addressed; these are reflected in the actions that were identified during the consultations.

The situation in the islands varies in the islands and the provinces; among the dichotomies, of which some brought about by the recovery process, are:

- Communities have been trained in DRR but no drills are done and traditional and cultural beliefs may overtake whatever value was gained in increasing community resilience.
- Although some community members may have the willingness to adapt to change in pursuit of the present government's thrusts, progress is potentially impeded by elders with low education level and ad hoc planning that characterized the previous government.
- Notwithstanding a claim that other islands are willing to help in times of emergency, a big challenge remains with respect to the capacity of host island communities with limited space.
- While internally displaced received food, water and electricity for free in temporary shelters (some for four years), social tensions and inequities arose from prolonged stay of populations in host communities.
- Since community participation on humanitarian and succeeding recovery activities was limited, ownership of reconstruction programmes by communities was hampered.

Provincial workshops carried out in September 2009 through the facilitation of SEEDS, a non-governmental organization shall have provided the important link of the process initiated in Male.

As shown by experience to date, poor definition of roles and responsibilities of government agencies and other stakeholders needs to be replaced by resolute policies. Actions should then emanate supported by those policies. In a matter of speaking, positive changes in the country's disaster risk management system can happen only with 'nourishment' provided by a strong legal and institutional framework. Stakeholders in consultations have repeatedly seen the NDMC as taking the lead while mandates of the rest of the

government structure are also clearly defined. Clear chain of command and response mechanisms needs a strong decision making body that takes lessons from the ad hoc multisectoral team experiences of the past. Organizational development will therefore be required of the new structure. One of the key areas requiring immediate attention is lateral communication and information flows.

The test of mainstreaming DRR and CCA is the allocation of government budget for risk reduction activities, some of which have been mentioned. These activities shall address inadequacies not only in terms human resources and research institutions, but also technology and information like sea vessels with satellite communication systems and technology awareness, coordination and information sharing. When tools like the building code and the Environmental Impact Assessment (EIA) system are in place, safeguards for proper implementation shall need to be ensured. At the national level, constraints are the poor understanding of decision makers, inability of development organizations to recognize what constitutes DRR and CCA in their development, weak accountability mechanisms for local governments and organizations. Multi-stakeholder dialogues and consultation process must continue while budget allocation is assured.

The Framework on IDP Management in the Maldives points out crosscutting issues which likewise applies to the SNAP strategies. Gender, environment, protection (and assistance), community participation, and capacity building ought to be intrinsic consideration to any strategic action or response.

5. Towards a Strategic National Agenda on Disaster Risk Reduction and Climate Change Adaptation

Guided by discussions during the workshop and intensive consultations, the strategic areas and key issues (Figure 4) are:

1. Enabling environment for good democratic governance
2. Empowered and capable communities
3. Resilient communities with access to technology, knowledge and other resources
4. Risk-sensitive regional and local development

Under each strategic area are 10 proposals after combining similar objectives and actions that were identified by the workshop participants (Table 2).

These proposals do not attempt to encompass the wide range of possible disaster risk reduction and climate change adaptation measures. These are strategic actions to respond to the needs articulated during the consultation. Existing mechanisms and processes by which the adaptation options (see Annex E) may therefore need to be enhanced so that priorities are addressed in synergy with those in Table 2, and vice versa.

Table 2. National Disaster Risk Reduction and Climate Change Adaptation Action Plan, 2010-2020

STRATEGIC AREA 1: CREATING THE ENABLING ENVIRONMENT FOR GOOD DEMOCRATIC GOVERNANCE					
Program/ Project(s)	Objective(s)	Strategic Actions/ Activities	Timeframe	Lead Institution/ Partners	Remarks
1.1 Institutional framework – institutional alignment and decision making	To strengthen institutional capacity to manage disaster and climate risks and to respond to emergencies.	Mainstream disaster and climate risk reduction into development policies, plans, and programs of government. Strengthen the legal framework for DRR and CCA.	Before end of Feb 2010	The President's Office, Steering Committee, NDMC, all government ministries, local government office and private sector and business groups	Consult key stakeholders in formulating the legal framework.
		Appoint apex steering committee for disaster and climate risk management representing all key stakeholders.	Before end of Sept 2009	The President	Consult all stakeholders in formulating the legal framework.

		Establish an effective modality for mainstreaming strategic policy planning and program implementation on disaster risk reduction and climate risk management by all government ministries.	Before end of Nov 2009	The President;s Office, Steering Committee, NDMC, all government ministries	Before the ongoing debate on decentralization ends, engage the legislators in dialogue to include enabling provisions in the Local Government Bill.
		Decide which level of local government should be coordinated by the Steering Committee when a disaster strikes.	Before end of December 2009	Steering Committee, NDMC	This provision has to be incorporated in the Local Government Bill.
		Develop and promulgate SOP for disaster and climate risk management to all national government agencies and local government offices.	Before end of January 2010	Steering Committee, NDMC, national government agencies, local government offices	The SOP shall specify the roles and functions of the agencies and institutions, and the systematic procedures for disaster risk management and emergency response.

1.2 Capacity building for disaster risk management at all levels: institutions, local authorities, and communities	To enable all stakeholders to manage disaster and climate risks and to respond to emergencies in an effective, efficient and timely manner.	Establish institutional and agency mandates and SOP on disaster and climate risk reduction and disaster risk management. Develop a disaster and climate risk reduction and management plan with user friendly "tool kits".	1-5 years	Parliament, NDMC, national government agencies, local governments, private sector	Lobby parliament members for enabling legislation and establish legal frameworks. Promote media involvement (TV, radio).

STRATEGIC AREA 2: EMPOWERED AND CAPABLE COMMUNITIES					
Program/ Project	Objective(s)	Strategic Actions/ Activities	Timeframe	Lead Institution/ Partners	Remarks
2.1 End–to–end early warning system	To enhance the early warning system nationwide.	Enhance early warning facilities and equipment. Establish a network system for community-based epidemiological surveillance and efficient exchange and dissemination of early warning information at all levels.	6 months to 1 year	NDMC, Maldives Meteorological Service, Ministry of Health, Ministry of Fisheries and Agriculture, Ministry of Tourism, local government offices, media, MRC, telecommunications company, private sector groups	Engage and tap the capacities of telecommunications companies and resort operators, among others, for an effective and efficient early warning system in the island communities.

2.2 Community-based disaster and climate risk management	To enable island communities to manage disaster and climate risks.	Conduct risk and resource mapping in communities. Establish methodology for identifying and understanding risks at the community and household levels. Train local government staff and island development committees (IDC). Conduct contingency planning and simulation exercises involving all stakeholders in the island community. Conduct community awareness raising activities, involving local community and religious leaders.	Short to medium term	NDMC, Maldives Meteorological Service, Ministry of Health, other relevant national government agencies, local governments, regional hospitals and community health centers, atoll councils, local councils, civil society, private sector groups, resort operators, MRC, media	Engage and tap the capacities of MRC and the private sector in training the local community on disaster risk management.

STRATEGIC AREA 3: RESILIENT COMMUNITIES WITH ACCESS TO TECHNOLOGY, KNOWLEDGE AND OTHER RESOURCES					
Program / Project	Objective(s)	Strategic actions / activities	Time frame	Lead institution / Partners	
Remarks3.1 Knowledge management (KM) capacity building	To build knowledge management capacity	Hold public and corporate seminars on DRR and CCA. Establish KM database including risk profiles and best practices of communities. Dissemination of DRR and CCA good practices through publication and electronic media.	Long term	NDMC, local governments , and all other key stakeholders	Ongoing.
3.2 Awareness raising (Know Risk, No Risk)	To enhance public awareness of disaster risk, especially among children, youth, media, and the private sector	Incorporate DRR and CCA into school curriculum. Conduct fora, competition and debates on DRR and CCA related issues.	Short term	Ministry of Education, Ministry of Health, UNDP, UNICEF, MRC, Media	Ongoing.

Critical is the passage of the Disaster Management Bill.	To strengthen the role of media in information dissemination	Produce and broadcast regular educational TV and radio programs and special segments for children (e.g. cartoon animations) on disaster and climate change.	Medium-term	Department of Public Information, TVM, VOM, DTV, VTV, NDMC	
	To promote public-private partnership for public awareness raising To empower community-based organizations (CBOs) and non-governmental organizations (NGOs) in DRR activities	Promote Information sharing. Conduct capacity assessment. Conduct training of trainers.	Long-term	NDMC, national government agencies, local governments, and all other key stakeholders	

3.3 Connecting island communities to technology, knowledge and resources	To ensure that communities have access to internet technology, knowledge and other resources	Conduct drills and exercises on the use of communications technology for disaster and climate risk management. Incorporate DRR and CCA related topics into the school curricula. Develop story books on DRR and CCA for children. Engage the media in building the knowledge and understanding of the public of risks. Conduct advocacy campaigns for heightened public awareness on disaster and climate change risks.	Short-term	NDMC, Maldives Meteorological Service, Ministry of Environment, Ministry of Education, Telecommunications authority, service providers, local government, province offices, private sector, media	Communities should be consulted in project development. Projects should be acceptable and approved by the local community before implemented. Means for project continuity and sustainability must be ensured.

STRATEGIC AREA 4: RISK-SENSITIVE REGIONAL AND LOCAL DEVELOPMENT					
Program / Project	Objective(s)	Strategic Actions/ Activities	Timeframe	Lead Institution/ Partners	Remarks
4.1 Regional development focused on vulnerable communities	To create adequate safe spaces for vulnerable communities To generate resilient economic livelihood	Undertake spatial planning including planning for safe relocation sites. Promote island ecosystems protection. Creative incentives to attract smaller, vulnerable communities to regional centres through the creation of economic opportunities, among others. Conduct special skills training for vulnerable communities and families.	Medium to long time	National Planning Council	Critical is the legislation for decentralization and regional development.

4.2 Risk-sensitive policy and regulations in construction and industry	To minimize or mitigate disaster and environmental risks in infrastructure, buildings and industrial activities	Ensure wise land use planning. Issuance of legal guidelines and standard procedures for reducing risks in construction and in other industrial activities including sand mining. Promote awareness within and among industry sectors on risk reduction and risk management measures.	Short to medium	The President's Office, Ministry of Housing, Transport and Environment	

4.3 Disaster-resilient community housing and public infrastructure	To promote the construction of safe and disaster resilient housing and public infrastructures.	Enforce sound building code. Study the feasibility of financing plans for housing (including community guarantee system) Establish government-private sector program for providing housing loans to the people. Promote disaster and climate resilient mosques.	Long-term	Ministry of Housing, Transport & Environment, NDMC, Ministry of Finance, private sector groups	Critical is the passage of the National Building Bill.

The ten projects are further elaborated with supplemental insights from subsequent interviews as described below.

Strategic Area 1: Enabling Environment Towards Good Governance

Institutional Framework

Strengthen institutional capacity to manage disaster risks and respond to emergencies.

Legal preparedness is a key element that has been recognized by the stakeholders from the planning as well as implementing agencies of the government. The Indian Ocean tsunami exposed legal impediments for making disaster preparedness measures work. The institutional framework is also then embodied in a disaster risk management bill that seeks to harmonize and make relevant laws consistent while considering risks in all activities of government and private sectors. The timing for a law that seeks to clarify

roles and responsibilities and goes by the principle of subsidiarity is propitious when decentralization is considered the foundation for national progress in a democratic government. It shall strengthen the National Disaster Management Center to make it a viable secretariat for multistakeholder dialogues and monitoring the national-level disaster risk reduction plan. It shall enhance and promote the linkage of disaster risk reduction with the NAPA, and other relevant actions and master plans through appropriate mechanisms as the new government pursues its vision. It shall provide for capacity building for disaster preparedness and responsiveness according to a capacity assessment.

Capacity Building for Disaster Preparedness:

Enable stakeholders to deal with disasters in an effective, efficient and timely manner

Capacity building in different areas of disaster preparedness at all government levels and island communities shall be undertaken in a program targeting personnel, officials and citizens. The program shall be based on a capacity assessment. Training needs of scientific and technical personnel involved specially in mitigation such as early warning systems and coastal resource management need also be assessed in connection with the demand for preparedness in different island environments. Appropriate tools and measures in support of climate change adaptation shall then be established through the project in accordance with consultations and assessment results. Tools that link climate change adaptation and disaster risk reduction shall be made available to potential users.

Strategic Area 2: Empowered and Capable Communities

End-to-End Early Warning System

Enhance the early warning system.

While global scenarios due to climate change are clear, the regional and country-level picture based on climate risk models are less clear. The work by the Maldives Meteorology Services (MMS) requires advanced systems to upgrade its warning services. The results of

work done in MMS shall be done collaboratively with other institutions particularly in the area of risk communication as the country adopts community-based disaster risk management. Linked with this are improvements related to climate risk models and scenarios, which will support analysis and effective communication of meteorological information to decision makers. This also requires the establishment of a network of experts and institutions for scientific information exchange. In this manner, a link shall have been established between the climate change adaptation and disaster risk reduction communities.

Community-Based Disaster Risk Management

Enable island community to deal with disaster risks.

The islands comprising Maldives vary in physical, socio-economic and other characteristics. Some threats are fairly distributed in the islands, each community however have varying levels and types of vulnerability and therefore face different risks. Each island community mus therefore be able to deal with disaster risks to which it is exposed using the community-based disaster risk management approach. The government can work with or support the Maldivian RedCrescent and other NGOs which have experience in this field.

Strategic Area 3: Resilient Communities with Access to Technology, Knowledge and Other Resources

Knowledge Management. *Build knowledge management capacity.*

In order to support disaster risk reduction efforts, a detailed disaster and climate change risk profile and knowledge database shall be developed; a comprehensive history or inventory of disasters of the country shall also be completed. Climate information can be developed in conjunction with NAPA.

Awareness Raising

Enhance public awareness about disaster risks and climate change.

Through inter-agency and multisectoral collaboration among all relevant government agencies , the media, the religious, health and other professionals, NGOs and CBOs, awareness-raising such as instructional and education campaigns for different target audiences are going to be designed and implemented. The strategy shall be based on perception studies and needs assessment for particular sectors of society. The project can include a component for training of trainors to ensure multiplier effect and continuity over time.

Connecting Island Communities to Technology and Resources

Ensure that communities have access to Internet, knowledge and other resources needed for reducing vulnerability.

Far-flung and inaccessible islands face severe constraints in terms of not only making use of opportunities but more so of not being able to address their social, economic and development needs. Internet resources can fill the gaps in terms of knowledge and livelihoods so that the young population may find a better future. Other traditional sources of information such as media and educational tools will be better focused on their needs through consultation with communities.

Strategic Area 4: Risk-Sensitive Regional and Local Development

Regional Development Focused on Vulnerable Communities

Create adequate safe spaces for vulnerable communities and generate economic livelihood.

Following the sustainable development paradigm, integrated planning in the provinces and the islands that compose them shall adopt risk-sensitive measures in land use planning and social infrastructure/facilities location planning in consonance with a regional

development strategy attuned to demographics, transport and other planning factors. This should therefore be included as a major strategy in the National Development Plan to be developed. As such, all other action or master plans shall be harmonized particularly so that objectives of climate change adaptation and disaster risk reduction are consistently addressed in a complementary way. This strategy has a 'soft' component that will develop social protection measures or safety nets through health services, livelihood generation, microfinance, and insurance. The 'hard' component is comprised of physical protection of settlements, coastal protection, including location of social infrastructure.

Risk-Sensitive Policy and Regulation

Mitigate disaster and environmental risks in infrastructure, buildings and industrial activities.

Standards and regulations are part of mitigating disaster and environmental risks. A draft building code has been prepared however a great concern is its implementation and therefore the inspection and monitoring systems need to be put in place with trained professionals actually doing particular tasks. Environmental impact assessment which has been in place in Maldives is one such policy tool to ensure that negative impacts of development projects are mitigated and risks addressed. According to the Environment Protection Agency, there is a need to revise the EIA regulation for better monitoring and enforcement and putting sanctions against 'environmental crimes.' A system of incentives such as an incentive scheme for purchase and shipment of eco-friendly equipment and goods, should also be explored. Industrial operations especially in regard to solid waste disposal, air pollutant emissions, wastewater releases, and practices fall under environmental laws that need to regulated in the interest of a clean environment.

Disaster-Resilient Community Housing and Infrastructure

Promote construction of safe housing and community infrastructure.

Building houses according to standards may be desirable but may not be affordable to some Maldivians. To serve the needs of community or village residents, their specific

required social infrastructure ought to be understood in the context of the island's characteristics. While considering the interconnectedness of physical needs and the household's capacity to spend, financing plans, cost-sharing schemes, public-private partnership with the corporate sector, among others can be explored without putting much burden on one party.

The consultation confirmed the on-going and in-the-pipeline DRR activities. Some measures prior to the IOT are in essence impact-reducing actions which professionals among civil works engineering such as flood control and seawall construction are mitigating measures against potential harm from high level of water, inland and offshore; they are called such because negative impacts are minimized (or mitigated).

Integrating disaster risk reduction into development programming through the various sectors have been expressed in the consultation process. Throughout its nationhood, the country utilized a plan that was embodied in the "national development plan." SNAP comes at an opportune point in time when the key pillars of President's Rashid's Manifesto are fleshed out in terms a national plan with the complementary UNDAF. A concrete manifestation of commitment to DRR is the allocation of government budget in the ministries and other government and quasi-government agencies for preparedness and mitigation measures. Budget lines that essentially make communities, infrastructure, and organizations (both public and private) resilient will effectively mainstream staff, time and material resources towards the goal of disaster risk reduction, and ultimately disaster loss reduction.

Similarly, this presents a significant step towards an honest-to-goodness management of climate and disaster-related risks. Maldives is intrinsically at risk due to sea-level rise, climate variability and weather extremes. Therefore, it make a lot economic sense to take actions and allocate resources appropriately especially as the Maldives is facing a huge financial challenge; any cost reduction or way to maximize positive impacts of projects in dealing with the negative impacts of both climate change and natural hazards will

contribute towards the progression of the Maldives from a least developing nation to the next level.

Climate risk planning (and synergistically with disaster risk reduction) can thus be more explicitly factored into land use plans and environmental countermeasures. For instance, integration of climate change scenarios into disaster risk profiles of islands needs to be done. This shall comprise a strategy to proceed towards a risk-sensitive regional and local development. The use of regional and local by definition entails decentralization; by extension, the participation of the private sector in local economic development is also encouraged.

The concept of 'safe islands' (and previously a consolidated islands programme) builds on the assumption that any island could be made safer using appropriate technology. The 2008 Natural Hazard and Physical Vulnerability Assessment Report challenged the concept based on the geophysical safety and environmental vulnerability of the islands studied. Population consolidation, however, increases the risk of high density settlements to hazards. Both approaches are also not socially and politically acceptable. The integration of climate change risks in resilient island planning as expressed in the NAPA should be heeded in a similar way that the National Environmental Action Plan 2009-2013 articulates "resilient islands" as one of six development goals. The goal of "Resilient islands" means considering critical infrastructure, human settlements, human health, risks to tourism sector, coral reef systems, fisheries and food production, and natural disaster preparedness and mitigation. Looking at these as sectors, respective sectoral agencies ought to be mainstreaming and the SNAP opens an opportunity for this.

The effectiveness of the SNAP will be assessed in its implementation and the commitment of all relevant agencies. With technical assistance from the development assistance organizations, a system of indicators to monitor and evaluate implementation can be set up to ensure achieving progress for the nation and accountability to the Maldivian citizens.

6. Implementation Issues

The implementation of the SNAP would require a whole of Government commitment translated in terms of adequate resources across all sectors and at national, provincial and community levels. The SNAP process is an inclusive one which involves island communities and private sector stakeholders.

Before a detailed implementation program can be developed for the SNAP, it is critical to lay the foundation for an integrated DRR and CCA for the Maldives. To ensure that the intentions of the Maldivian nation to secure resilience against disaster and climate change risks, a number of requisite steps need to be taken to establish that foundation, both at the national and regional levels.

6.1 At national level

Provision of the legal basis for future disaster risk reduction actions

A multi-hazard mandate of MDNC to allow it to carry out its expanded functions in accordance with expectations from the private sector and island communities needs a legal basis. The law on disaster risk management needs to explicitly deal with disaster and climate change risks. Consultations must continue through the national platform for Maldives wherein the role of MDNC shall be defined.

Communication of SNAP in the island communities, the private sector and local governments

Making the process more inclusive by ensuring that other key stakeholders can join the continuing dialogue process is essential. Provincial workshops leading to a popular adoption of the 'road map' shall increase confidence among island communities along with the decentralization process. Community members are themselves the first responders

while local government has the role to protect its citizens while being provided by guidelines from the national level.

Taking judiciously into account existing disaster-related plans of key sectors in a design process of the strategic actions and others that may be adopted

It is important to deal with the sectors most affected by disaster and climate change risks. Consultations particularly highlighted the marine ecosystem, food security (agriculture), fisheries, water, health and tourism sectors. These sectors (Figure 5) serve as functional links between DRR and CCA. For instance, apart from the fact that government must protect its citizens, social justice and human security demand that the health sector considers disaster and climate change risks. Thus, alternative systems for uninterrupted health services and adequate supplies in times of disasters are prepared for. Similar, "safe and green" hospitals in terms of construction and location should be planned and built. Bearing in mind that strategic areas are multi-sectoral, detailed and practical two-year programmes of the strategic actions of the SNAP can be formulated by identifying the accountable agency or agencies, and time, resource and budget requirements. Each ministry and sector may likewise be guided by a corporate plan identifying time, resource and budget requirements. Undertaking a bi-annual review of progress in synchronization with the HFA Monitor will assist in institutionalizing monitoring and evaluation and thus foster accountability. It is by allocating budget for disaster risk reduction that truly proves it is mainstreamed.

Figure 5. Sectors in island disaster and climate change risk reduction: Maldives context

5.2 At regional and international levels

Coordinated scientific, technical and financial input

The Maldives will engage in round table discussions with regional and international organisations and development partners and NGOs to ensure long term and coordinated scientific, technical and financial support for the implementation of SNAP. Considering a scale of emergency similar to the tsunami, the Maldives can gain knowhow about legal preparedness from the IFRC

More focused networking with the small island states in various parts of the world, particularly the Pacific and the Caribbean.

Considering the contingencies of sea level rise and extensive risk or accumulating risk, the Maldives will learn from and share experiences with other island nation states.

7. Towards Resilient Island Communities

During the consultations, stakeholders expressed their appreciation of the government's dialogue process pursued in drawing up the SNAP. Assessments such as the last Vulnerability and Poverty Assessment conducted in 2004 made prior to the tsunami support the conclusions that getting priorities from the people's perspective is important. DRR is an important entry point for concerted efforts to develop people's potentials. Also, the MDG Maldives Country Report of 2005 said, public financing needs to be channelled to achieve all the MDGs across all the atolls. We can learn from these.

Low probability and medium to high consequence disaster risk impacts depend on the state of vulnerability of specific island communities. It is therefore essential to make a way into island communities comprising the country. It is but natural to pursue a SNAP that makes island communities resilient, based not only what the government can offer, but also what people can do by themselves.

Annexes

Annex A

Participants in the Consultation Process, August-October 2009

Focus Group Discussion, August 16, 2009

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Focus Group Discussion, August 18, 2009

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Consultative Leadership Workshop, August 19-20, 2009

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Abdulla Sodiq, Atoll Councilor, Addu Atoll

Adam Nasir K., Councilor, Middle North Province

Ahmed Mujthaba, State Minister, South Province

Ali Mohamed, Deputy State Minister, Gn Atoll, South Province

Ali Niyaz, Deputy State Minister, North Province

Aminath Jameel, Deputy State Minister, North Province

Farooq Mohamed Hassan, State Minister, Central Province

Ibrahim Khaleel F., Atoll Councilor

Ibrahim Naeem, Director, Environmental Protection Agency

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Mohamed Hassan V., Atoll Councilor, Middle North Province

Mohamed Mahir Easa, Councilor, Faadhippolhu

Mohamed Naeem, State Minister, Middle North Province

Mohamed Naseer, State Minister, South Province

Mohamed Niyaz G. Dh., Atoll Councilor, Upper South Province

Mohamed Shakeeb,, Councilor, TH. Hirilandhoo

Mohamed Shareef, D. Minister, Upper South Province

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Gary Cagle, UNDP Consultant at NDMC

Jelma C. de la Pena, Branch Development Delegate, IFRC

Mihir Joshi, Senior Programme Officer, SEEDS India

Mohamed Inaz, Assistant Resident Representative, UNDP

Mohamed Yasir, Communication Analyst, UNRCS

Mustharushid, Senior Programme Officer, IFRC

Nahid Shakir, UNDP Consultant, Education Development Center

Ranjith George, UNISDR Consultant at NDMC

Resurreccion P. Marinas, UNISDR Consultant

Sarah Landelle, Information Management, UNISDR

Sujit Mohanty, Chief Project Coordinator, UNISDR

Titus Kuuyuor, UNDP Consultant, Education Development Center

Vanessa Buchot, Programme Officer, UNISDR

Victor Ghoshe, Consultant, SEEDS India

Post-Workshop Interviews, August 20, 2009

Azzam Ibrahim, Senior Engineer, State Electric Company Ltd.

Mohammed Latheef, Director, State Electric Company Ltd.

Post-Workshop Interviews, September-October 2009

Abdul Muhusin Ramiz, Director, Maldives Meteorology Services, MHTE

Abdullah Naseer, Permanent Secretary, Ministry of Fisheries and Agriculture

Ahmed Rasheed, Meteorological Forecaster, Maldives Meteorology Services, MHTE

Aishath Eaman Mohammed, Deputy Undersecretary, Advisory Council on Climate Change, The President's Office

Aminath Shauna, Deputy Undersecretary, Advisory Council on Climate Change, The President's Office

Aslam Shakir, State Minister for Housing, Transport and Environment, Advisory Council on Climate Change, The President's Office

Hudha Ahmed, Lead National Consultant, NAPA Project, UNDP

Husen Amru, Deputy Undersecretary, Advisory Council on Climate Change, The President's Office

Ibrahim Naeem, Director, Environmental Protection Agency, MHTE

Imat Mohammed, Assistant Executive Director, Department of National Planning, Ministry of Finance and Treasury

Jorge Luna, Representative, WHO

Najfa Shaheen Razee, Service Operations Officer, World Bank

Sheena Moosa, Permanent Secretary, Ministry of Health and Family

Shuaib Ali, Deputy Undersecretary, Advisory Council on Climate Change, The President's Office

Annex B

Concept Note and Programme Agenda for the SNAP Focus Group Discussion for Selected Sectors, August 16-18, 2009

I. Introduction

As agreed upon during the meeting with President Mohamed Nasheed on 12 July, the United Nations International Strategy for Disaster Reduction shall extend technical assistance to the Government of the Maldives in formulating the country's Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation or SNAP.

The SNAP is intended to provide strategic direction and actions for reducing disaster risks and adapting to climate change in the country in the short and medium term. Building upon the existing capacities of the country, the SNAP shall identify and present priority programs and projects which the Government together with partner stakeholders would undertake to attain the country's objectives in disaster risk reduction and climate change adaptation in accord with the Hyogo Framework for Action.

The process of developing the SNAP entails consultations with and common understanding among key stakeholders on the critical issues and concerns, gaps and needs, and possible approaches and courses of action.

To facilitate this process, focus group discussions (FGD) for SNAP will be held initially for the following cluster of stakeholders on the dates indicated:

Cluster 1 -- Housing and Construction, Environment (August 16, 2009)

Cluster 2 -- Health, Education, and Media (August 17, 2009)

Cluster 3 -- Development Planning and Tourism (August 18, 2009)

The participants in these consultations will be identified and invited in coordination with the National Disaster Management Center.

II. Objectives

The objectives of the focus group discussions are:

1. To generate information and lessons learned from key stakeholders on disaster risk reduction and climate change adaptation initiatives, including mainstreaming efforts;
2. To identify the key issues and concerns and the gaps and challenges of each sector in capacity building and mainstreaming disaster risk reduction and climate change adaptation;
3. To formulate recommendations for advancing disaster risk reduction and climate change adaptation and for improving mainstreaming efforts in each sector.

III. Methodology

In a facilitated discussion, the participants are expected to share information, viewpoints and experiences of their respective agency or organization on the following:

1. What are your existing institutional capacities for disaster risk reduction and climate change adaptation?

   Information to be shared includes:

   Mandates

   Structures, systems and arrangements

   Policies, plans and strategies (including frameworks)

   Programs and activities

   Lessons learned

2. How do you view/assess your capacities? How effective has your agency/ organization been in disaster risk reduction and climate change adaptation?
3. What are the key issues and compelling challenges that your agency/organization is confronted with today? (Given these, what are the gaps and your needs to enhance your capacity.)

4. What proactive actions must be undertaken to address these issues and challenges more effectively? Who are your prospective partners in these actions? Proposed actions may be structured along the five priorities for action of the HFA.
5. What are the present and foreseeable opportunities to seize?

IV. Programme Agenda

09:30 Welcome and Keynote - Minister Abdulah Shahid, NDMC
Introduction of Participants
Overview of SNAP - Mr. Emmanuel M. de Guzman, UNISDR Consultant
Mechanics of the FGD - Mr. Antonio Fernandez, UNISDR Consultant
10:30 Coffee Break
10:45 Sharing Session 1: Institutional Capacities for DRR and CCA
12:15 Lunch Break
12:00 Sharing Session 2: Key Issues and Compelling Challenges
14:45 Coffee Break
15:00 Sharing Session 3: Courses of Action and Opportunities
16:45 Synthesis - Mr. Antonio Fernandez
17:00 Impressions - Participants
Closing Message - Minister Abdulah Shahid, NDMC

Annex C

Concept Note and Programme Agenda for the Consultative Leadership Workshop for SNAP August 19-20, 2009

I. Introduction

As agreed upon during the meeting with President Mohamed Nasheed on 12, the United Nations International Strategy for Disaster Reduction shall extend technical assistance to the Government of the Maldives in formulating the country's Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation or SNAP.

The SNAP is intended to provide strategic direction and actions for reducing disaster risks and adapting to climate change in the country in the short and medium term. Building upon the existing capacities of the country, the SNAP shall identify and present priority programs and projects which the Government together with partner stakeholders would undertake to attain the country's objectives in disaster risk reduction and climate change adaptation in accord with the Hyogo Framework for Action.

The process of developing the SNAP entails consultations with and common understanding among key stakeholders at national and local levels, on the critical issues and concerns, gaps and needs, and possible approaches and courses of action.

To facilitate this process, a Consultative Leadership Workshop for SNAP to be participated in by province state ministers and atoll chiefs will be held on August 19-20, 2009.

The participants will be identified and invited in coordination with the National Disaster Management Center.

II. Objectives

The objectives of the Leadership Workshop for SNAP are:

1. To create awareness and understanding of the rationale and process of SNAP among key Government officials;
2. To discuss key issues, challenges, and strategies in building national and local capacity for disaster risk reduction and climate change adaptation;
3. To formulate and adopt a framework for drafting SNAP.

III. Methodology

The Leadership Workshop will discuss and examine the key issues, challenges, and strategies in building national and local capacity for disaster risk reduction and climate change adaptation. The HFA priorities for action shall serve as framework for this process. Among the issue domains and approaches for discussion are the following:

1. Governance - Making disaster risk reduction a priority

Objective: Ensure that DRR is a national and local priority

Multi-stakeholder dialogue

Formal and informal coordination mechanisms

Legal and institutional basis

Explicit and clear responsibilities for stakeholders

Resource allocation

2. Risk identification, assessment, monitoring and early warning (Improving risk information and early warning)

Objective: Identify, assess and monitor disaster risks and enhance early warning

System to monitor, archive and disseminate data on key hazards and vulnerabilities

Nationwide risk assessment and analysis

Early warning systems for all major hazards

Communication and dissemination mechanisms; early warning reaching and serving people at the community level

3. Knowledge management

Objective: Use knowledge, innovation and education to build a culture of safety and resilience at all levels

National public awareness strategy for DRR

Common language/terminology

Formal and informal education; school curricula

Training and learning programs for communities, local chief executives, local government officers, businesses

Integration of education system and research community

4. Risk management and vulnerability reduction (reducing risk in key sectors)

Objective: Reduce the underlying risk factors

Environmental planning and management; natural resources management

Poverty alleviation mechanisms and vulnerability reduction

Land use practices and housing

Mechanisms implementing safety and building codes; disaster risk implications of project proposals

Private sector involvement; financial/economic instruments

Disaster recovery plan

5. Disaster preparedness for response (related to all other issue domains)

Objective: Strengthen disaster preparedness for effective response at all levels

Components of disaster preparedness/activities in support of disaster preparedness

Assessment of disaster preparedness capacities and mechanisms

Planning and programming for disaster preparedness; contingency plans

Financial reserves and contingency mechanisms to support effective response and recovery

Cluster approach in humanitarian assistance

Damage and needs assessment

Lesson learned documentation procedures; post-event reviews

6. Resource mobilization in disaster risk reduction (related to Issue Domains 1 and 5)

Objective: Prioritize disaster risk reduction and allocate appropriate resources

Operationalizing legal, institutional and policy framework: law, regulation, executive order, circular, networks, memorandum of understanding/agreement, disaster reduction plan

Focal point organization: authority, responsibility, human resources, training and support

Inter-organizational structure to coordinate DRR: national stakeholder dialogue

Training

Operating and capital budgets, financial incentives for DRR initiatives, pooled resources

Local governance systems for DRR: resources, mainstreaming with local development

Champions of DRR planning and activities

Insurance and other risk sharing schemes, mitigation promotion through premium incentives and reduced government liability in case of disaster

IV. Programme Agenda

Day 1 - August 19, 2009

09:30 Welcome Remarks - NDMC

Keynote - Minister Abdulah Shahid, NDMC

Message - UN Resident Coordinator a.i.

Introduction of Participants

Overview of SNAP - Mr. Emmanuel M. de Guzman, UNISDR

Mechanics of the Workshop - Mr. Antonio Fernandez, UNISDR

10:30 Coffee Break

10:45 Session 1: Disaster risk reduction and climate change adaptation: Where are we now?

Progress in implementing the Hyogo Framework for Action 2005-2010 - NDMC

Contributions of the UN Country Team to DRR and CCA in the Maldives - UNDP, WHO, UNICEF

11:30 Working Group Discussions

12:30 Lunch Break

12:30 Working Group Discussions (Continuation)

14:00 Working Group Presentations

14:30 Sharing Session 2: Vision and aspirations for a safer and more sustainable future of the Maldives: Where do we want to go from here?

Third National Environment Action Plan 2009-2013 (NEAP-3)

Backgrounder on the Disaster Management Bill

15:00 Coffee Break

15:15 Working Group Discussions

16:45 Working Group Presentations

17:15 Expectations for Day 2 - Mr. Antonio Fernandez

Day 2 - August 20, 2009

09:00 Synthesis of Day 1

09:10 Sharing Session 3: Strategies and actions for reducing disaster risks and adapting to climate change: How do we get there?

Film showing: "Risk and poverty in a changing climate"Feedback on SNAP Focus Group Discussions - Mr. Antonio Fernandez

09:30 Working Group Discussions

10:30 Coffee Break

10:45 Working Group Discussions (Continuation)

11:00 Working Group Presentations

11:30 Session 4: Drawing a Framework for SNAP

Presentation of SNAP Outline - Mr. Antonio Fernandez

Discussions

Adoption of SNAP Outline

12:30 Impressions of Participants

Closing Remarks - Minister Abdulah Shahid

Lunch immediately follows

Annex D

Workshop Guide for the Consultative Leadership Workshop for SNAP, 19-20 August 2009

A. Workshop Mechanics

1. Workshop Design

This workshop is one form of multi-stakeholder dialogue process for generating a road map for disaster risk reduction in the Republic of Maldives. It aims to allow the Provincial State Ministers and Atoll Councilors:

- To level off in terms of the current status of disaster risk reduction in the nation and their respective administrative units, achievements, sound practices and lessons learned;
- To reach a common understanding of gaps in capacity in order to attain the goal of "Safe Island" through disaster risk reduction and climate change adaptation;

- To agree on future strategic actions with their respective timeframes, collaborators and resources needed.

The workshop uses a silent reflection technique, i.e., participants write ideas relevant to a topic in silence. With meta cards, the participants use marker pens to write one idea per card. Ideas are written in large printed letters on the card. Ideas are expressed in short phrases or sentences not exceeding 10 words.

Moreover, the workshop uses SWOT analysis, a strategic planning technique originally designed to understand an entity's positioning viz. competitors. The technique is used in capacity development context and in the identification of strategic actions.

2. Input

2.1 Knowledge-Information Presentations

Session 1: Where We Are Now (Updates)
Implementation of the Hyogo Framework for Action (HFA)
Contributions of the UN Country Team

Session 2: Where Do We Want to Go from Here (Dynamic Context and Looking Forward)
Third National Environment Action Plan 2009-2013 (NEAP-3)
Proposed bills relevant to disaster or emergency management

Session 3: How Do We Get There
Film Showing: Risk and Poverty in a Changing Climate
Feedback from SNAP Focus Group Discussions

2.2 Group Discussion, Facilitation and Recording

Participants are divided into five groups of 6-9 members each. Each group shall have a facilitator and a note taker-rapporteur.

The facilitator shall ensure:

- That all group members are able to contribute to the topic and no one member dominates the discussion.
- That the issues are dealt within the time allotment.
- That the idea expressed in the meta/idea card is understood by all; if not, he/she acts the author of the idea to explain and if necessary, asks the author to edit the phrase/sentence in the card.

The note taker/rapporteur shall ensure:

- That all ideas from the group members are reflected on the group's output.
- That the matrix template for the output is written on the large sheet of paper which is then securely placed on a board or wall for the group to use.
- That entries in the matrix output are placed under the appropriate columns and/or rows.
- That the output (on the large sheet of paper) is encoded into the laptop and the file saved.

2.3 Materials

- Handout for each group: Issue Domain Sheet
- Large sheets of white, kraft or manila paper (3 regular flip chart sheets pasted together)
- Marker pens of different colors
- Meta cards (colored cartolina cut into 8.5 in. x 5.5 in. (210 cm x 148 cm) sizes or A4/bond paper sheets cut crosswise to half, roughly 8)
- Masking tapes
- Post-it markers (different colors).

3. Outputs

3.1 Table of strengths, weakness (limitation), opportunities and threats

3.2 Table of strategic actions for each thematic area of the Hyogo Framework of Action

Priority strategic actions and objectives

Key stakeholders

Timeframe (short-term, medium-term, long-term)

4. Outcomes

The workshop shall have contributed to

- Taking the future outlook statements summarized in the 2008 HFA Monitor a step further so that the country will be able to:
- To sustain the progress in all fronts that have been initially achieved since government authorities have recognized the challenges;
- To consolidate actions to build resilient communities as Maldivians learn from nations that have developed mechanisms and learned from past experiences;
- To incorporate risk reduction into the government's decentralization strategy.
- Providing a means for the Maldives to present a consolidated set of programs/projects that may be considered for donor assistance and the Country Programme Action Plan (CPAP)/ Country Cooperation Strategy (CCS).

B. Workshop Proper

The participants will be grouped according to topic of discussion. Each group will comprise of eight members, a facilitator, and a recorder. The topics of discussion by the groups, called issue domains, are:

Group 1	Governance
Group 2	Risk Assessment
Group 3	Knowledge Management
Group 4	Risk Management and Vulnerability Reduction
Group 5	Disaster Preparedness for Effective Response

Session 1 – Disaster Risk Reduction and Climate Change Adaptation: Where are we now?

As each of you deal with disasters and impacts related to climate change, what are the strengths, weaknesses or limitations, opportunities and threats of your organization, province, atoll or communities?

Purpose: The participant shall have

- introduced himself/herself by stating his affiliation(s)
- shared thoughts about the group's assigned issue domain based on experience and affiliation by:
- identifying strengths and weaknesses (limitations), opportunities and threats of his/her organization in undertaking disaster risk reduction (DRR)
- shares current, in-the-pipeline and future activities.

Output: SWOT Table (Template A)

Through a group member's self-introduction, the others are able to appreciate his/her priority concerns. The member may provide a context by mentioning the main mandate or business of the entity he/she belongs to. The following questions may be posed:

- When you think about the issue domain, what comes to mind?
- What are your thoughts on this and other aspects related to the issue domain?

Each participant shall use no more than 3-5 minutes.

The facilitator distributes copies of the Issue Domain Guide Sheet for the group; the Guide Sheet is an aid for the participant to reflect on the issue domain. The issue domain is articulated in terms of an objective inherent to the relevant task and/or means suggested by the HFA to attain the objective, and questions for the participant to think about and thus stimulate the mind to identify the SWOTs. Opportunities and threats are also considered. Participants are asked to write the SWOTs in meta cards, one idea per card (legible printed letters) and the organization's name written on the cards.

Session 2 – Vision and Aspirations for a Safer and More Sustainable Future of the Maldives: Where Do We Want to Go from Here

Matching Strengths with Opportunities (S-O): What opportunities can you seize using your organizational strengths?

Offsetting Threats with Strengths (S-T): How can you counteract the influence of threats using your threats?

Covering Weaknesses with Opportunities (W-O): What measures are necessary to develop your opportunities despite your weaknesses?

Mitigating Threats despite Weaknesses (W-T): What can you do to avoid or minimize situations where your weaknesses add to the threats?

Purpose: The participants shall have identified strategic actions given the conditions discussed in Session 1.

Output: SWOT Analysis Matrix (Template B)

Participants identify strategic actions that address priority concerns in DRR. This can be done in a combination of ways: matching strengths and weaknesses with opportunities and threats, considering continuation, expansion, and improvements of current activities, considering trends and latest developments, identifying new partnerships and resources that can be tapped.

Identified activities are written on meta cards, one activity per card. Key stakeholders are also written on the card.

Session 3 – Strategies and Actions for Reducing Disaster Risks and Adapting to Climate Change: How Do We Get There?

As a nation, What are the programs/projects that we ought to work together on? What existing linkages, mechanisms and resources from within can we draw from to achieve our goals? What resources shall require from external sources?

Purpose: Groups of participants shall have consolidated strategic actions/activities into tangible programs/projects, strategic actions that need to be undertaken for specific timeframes.

Output: Planning Worksheet (Template C)

- The facilitator encourages group members and helps them put together actions/activities that may be put under one program/project. Group together similar activities; consolidate them if necessary.
- The Planning Worksheet (Template C) may now be filled up.

Objectives: After grouping a set strategic actions/activities, lead the discussion towards identifying the objective(s) that bind these actions.

Actions: Put the result of Step 1 here.

Resource input: Let participants identify where to get resources – information, human, financial, material. Remind them of the possible involvement of the private sector and other partnerships. Inform or remind them of current and in-the-pipeline projects that may be continued or expanded to include relevant actions.

Timeframe: Decide whether the activity is immediate, medium-term or long-term. "Immediate" means do-able with current resources and existing structures. "Medium-term" means activities that can start with some requisite actions that can be made within 1-2 years time, and additional resources. "Long-term" means those that require significant transaction costs, institutional changes and significant reforms, apart from financial resources that may be required.

Lead institution and partners: Reach agreement on the most appropriate institution to assemble stakeholders in refining the program/project. Identify collaborating partners.

Additional notes: Identify mechanisms and other needs that may be required. Record comments that may have been said by group members which has strong implication on the success of the program/project.

Presentation of group work results and wrap-up

The outputs of groups are presented. Presentations can be limited to a few groups if time does not allow all groups to present. Comments and questions are entertained after the

presentations. The workshop facilitator provides acknowledges the contributions of all participants and provides a short wrap-up to synthesize results and conclude the workshop.

C. Useful Tips

1. Avoid saying "lack of ….." especially when identifying issues/problems. Dig deeper to know the root problem. For example, "lack of funds" is a common problem statement. The problem/issue should not be stated as lack of the solution. The problem is probably poor capacity to identify criteria for budget allocation, or low priority given to preparedness. There could be many possible reasons.
2. Allow no more than 3-4 minutes for a person to speak.
3. Steer the discussion firmly towards the issue domain assigned to the group.
4. Remind group members that HFA priorities for action (issue domains) overlap and that other groups may be discussing the same sub-topic.
5. Be sure to deal with the measures and approaches that may be applied to each issue domain.
6. Be sure that everyone has the same understanding of terminologies. Use the UNISDR definitions of terms as much as possible.
7. Some useful statements:
    - Effective disaster risk management is an important component of climate change adaptation.
    - Climate change and disaster risk management require local and international partnerships.
    - Adaptation programs have advantages of reducing the damage due to climate change and making society more resistant to other disasters.

(Source: Global Facility for Disaster Reduction and Recovery & ISDR, Climate Resilient Cities 2008 Primer)

D. Templates for Group Outputs

Template A: SWOT (Strengths, Weaknesses-Limitations, Opportunities, and Threats) Analysis Table Fields:

Internal Environment

External Environment

Organization

Strengths

Weaknesses /Limitations

Opportunities

Threats

Template B: Strategic Actions Table Fields:

Program/Project

Objective(s)

Strategic Action/Activities

Timeframe

Lead Institution and Partners

Additional Notes (Remarks: Mechanisms, Needs)

Annex E

Excerpts from Chapter 6 of the Maldives National Adaptation Program of Action (NAPA)

6.1 Adaptation Needs and Options

6.1.1 Land, Beach and Human Settlements

1. Consolidate population and development.
2. Acquire support for the speedy and efficient implementation of Safer Island Strategy.
3. Strengthen land-use planning as a tool for protection of human settlements.
4. Build capacity for coastal zone management.
5. Protect beaches through soft and hard-engineering solutions.
6. Protect house reef to maintain natural defense of islands.
7. Improve building designs to increase resilience.
8. Integrate climate change adaptation into national disaster management framework.

9. Develop flood control measures for islands.

6.1.2 Critical Infrastructure

1. Build coastal protection for airports.
2. Strengthen capacity for planning and design to ensure sustainable infrastructuredevelopment.

6.1.3 Tourism

1. Coastal protection and coastal zone management to protect tourist infrastructure.
2. Diversify the tourist product to reduce over-dependency on marine environment.
3. Develop climate change adaptation policy and strategy for tourism.

6.1.4 Fisheries

1. Exploit new species and promote poultry farming as alternative sources of proteinto reduce over-dependency on tuna for protein.
2. Improve fish finding and fish harvesting.
3. Establish aquaculture/mariculture as an alternative to natural breeding to reduce the economic
and social impacts of changing tuna abundance.
4. Undertake research and disseminate information on fisheries and climate change.
5. Experiment new and alternative species and breeding methods for livebait.
6. Integrated reef fishery management.

6.1.5 Water Resources

1. Acquire appropriate sewage treatment and disposal technologies to protect water resources.
2. Increase safe rainwater harvesting.
3. Acquire solar desalination technologies appropriate for small islands.
4. Undertake rainwater recharging of aquifers to reduce salinisation from saltwater intrusion and storm surge flooding.
5. Protect and preserve natural water catchment areas.

6.1.6 Human Health

1. Strengthen regulatory and institutional capacity for vector control.
2. Streamline the planning of healthcare services and strengthen medical emergency response.
3. Promote healthy islands and healthy buildings.
4. Strengthen the capacity for healthcare delivery.
5. Undertake research on climate change related diseases.
6. Increase nutrition promotion campaigns.

6.1.7 Agriculture and Food Security

1. Develop a national food security strategy.
2. Secure trade agreements with foreign trade partners to ensure food security.
3. Increase local food production through new technologies and strengthen marketing and sale of local food items.
4. Promote traditional food preservation and storage practices for local food.
5. Enforce and strengthen quarantine to prevent pests and diseases.

6.1.8 Biodiversity

1. Provide alternatives to coral and sand as construction materials.
2. Enhance the capacity for waste management to prevent pollution of marine environment.
3. Formulate and implement an oil pollution contingency plan.
4. Acquire appropriate sewage treatment technologies.
5. Establish marine protected areas.
6. Establish an information base on coral reefs and climate change.
7. Undertake monitoring and research to prevent coral diseases and rehabilitate coral reefs.

Source: Republic of Maldives, 2006 National Program of Action, Ministry of Environment, Energy and Water.

Annex F

UNISDR Terminology on Disaster Risk Reduction (2009)

Introduction

The UNISDR Terminology aims to promote common understanding and common usage of disaster risk reduction concepts and to assist the disaster risk reduction efforts of authorities,
practitioners and the public. The previous version "Terminology: Basic terms of disaster risk
reduction" was published in "Living with risk: a global review of disaster risk reduction initiatives" in 2004. The following year, the Hyogo Framework for Action 2005-2015 requested
the UNISDR secretariat to "update and widely disseminate international standard terminology
related to disaster risk reduction, at least in all official United Nations languages, for use in programme and institutions development, operations, research, training curricula and public
information programmes".

The 2009 version is the result of a process of ongoing review by the UNISDR and consultations with a broad range of experts and practitioners in various international venues,
regional discussions and national settings. The terms are now defined by a single sentence.
The comments paragraph associated with each term is not part of the definition, but is provided to give additional context, qualification and explanation. It should be noted that the terms are not necessarily mutually exclusive, and in some cases may have overlapping meanings.

The Terminology has been revised to include words that are central to the contemporary understanding and evolving practice of disaster risk reduction but exclude words that have a common dictionary usage. Also included are a number of emerging new concepts that are not in widespread use but are of growing professional relevance; these terms are marked with a star (*) and their definition may evolve in future. The English version of the 2009 Terminology provides the basis for the preparation of other language versions. Comments and suggestions for future revisions are welcome and should be directed to the ISDR Secretariat (see www.unisdr.org).

Acceptable risk

The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Comment: In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or "accepted practice" which are based on known probabilities of hazards and other factors.

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Comment: This definition addresses the concerns of climate change and is sourced from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The broader concept of adaptation also applies to non-climatic factors such as soil erosion or surface subsidence. Adaptation can occur in autonomous fashion, for example through market changes, or as a result of intentional adaptation policies and plans. Many disaster risk reduction measures can directly contribute to better adaptation.

Biological hazard

Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of biological hazards include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations.

Building code

A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

Comment: Building codes can include both technical and functional standards. They should incorporate the lessons of international experience and should be tailored to national and local circumstances. A systematic regime of enforcement is a critical supporting requirement for effective implementation of building codes.

Capacity

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Comment: Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity also may be described as capability. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.

Capacity Development

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.

Climate change

(a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".

(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".

Comment: For disaster risk reduction purposes, either of these definitions may be suitable, depending on the particular context. The UNFCCC definition is the more restricted one as it excludes climate changes attributable to natural causes. The IPCC definition can be paraphrased for popular communications as "A change in the climate that persists for decades or longer, arising from either natural causes or human activity."

Contingency planning

A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Comment: Contingency planning results in organized and coordinated courses of action with clearly- identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or disaster events, it allows key actors to envision, anticipate and solve problems that can arise during crises. Contingency planning is an important part of overall preparedness. Contingency plans need to be regularly updated and exercised.

Coping capacity

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Comment: The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

Corrective disaster risk management *

Management activities that address and seek to correct or reduce disaster risks which are already present.

Comment: This concept aims to distinguish between the risks that are already present, and which need to be managed and reduced now, and the prospective risks that may develop in future if risk reduction policies are not put in place. See also Prospective risk management.

Critical facilities

The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Comment: Critical facilities are elements of the infrastructure that support essential services in a society. They include such things as transport systems, air and sea ports, electricity, water and communications systems, hospitals and health clinics, and centres for fire, police and public administration services.

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Comment: The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped, in broad terms at least.

Disaster risk management

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Comment: This term is an extension of the more general term "risk management" to address the specific issue of disaster risks. Disaster risk management aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: A comprehensive approach to reduce disaster risks is set out in the United Nations- endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is "The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries." The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organisations and civil society actors to assist in the implementation of the Framework. Note that while the term "disaster reduction" is sometimes used, the term "disaster risk reduction" provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

Disaster risk reduction plan *

A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Comment: Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within relevant development plans, resource allocations and programme activities. National level plans needs to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to climate change adaptation plans should be made where possible.

Early warning system

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

Ecosystem services

The benefits that people and communities obtain from ecosystems.

Comment: This definition is drawn from the Millennium Ecosystem Assessment. The benefits that ecosystems can provide include "regulating services" such as regulation of floods, drought, land degradation and disease, along with "provisioning services" such as food and water, "supporting services" such as soil formation and nutrient cycling, and "cultural services" such as recreational, spiritual, religious and other non-material benefits.

Integrated management of land, water and living resources that promotes conservation and sustainable use provide the basis for maintaining ecosystem services, including those that contribute to reduced disaster risks.

El Niño-Southern Oscillation phenomenon

A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.

Comment: The El Niño part of the El Niño-Southern Oscillation (ENSO) phenomenon refers to the well-above-average ocean temperatures that occur along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while La Niña part refers to the opposite circumstances when well-below-average ocean temperatures occur. The Southern Oscillation refers to the accompanying changes in the global air pressure patterns that are associated with the changed weather patterns experienced in different parts of the world.

Emergency management

The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Comment: A crisis or emergency is a threatening condition that requires urgent action. Effective emergency action can avoid the escalation of an event into a disaster. Emergency management involves plans and institutional arrangements to engage and guide the efforts of government, non- government, voluntary and private agencies in comprehensive and coordinated ways to respond to the entire spectrum of emergency needs. The expression "disaster management" is sometimes used instead of emergency management.

Emergency services

The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Comment: Emergency services include agencies such as civil protection authorities, police, fire, ambulance, paramedic and emergency medicine services, Red Cross and Red Crescent societies, and specialized emergency units of electricity, transportation, communications and other related services organizations.

Environmental degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Comment: Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities. The types of human-induced degradation are varied and include land misuse, soil erosion and loss, desertification, wildland fires, loss of biodiversity, deforestation, mangrove destruction, land, water and air pollution, climate change, sea level rise and ozone depletion.

Environmental impact assessment

Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision-making processes with a view to limiting or reducing the adverse impacts of the project or programme.

Comment: Environmental impact assessment is a policy tool that provides evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and project approval processes and for international development assistance projects. Environmental impact assessments should include detailed risk assessments and provide alternatives, solutions or options to deal with identified problems.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Comment: Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

Extensive risk *

The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts.

Comment: Extensive risk is mainly a characteristic of rural areas and urban margins where communities are exposed to, and vulnerable to, recurring localised floods, landslides storms or drought. Extensive risk is often associated with poverty, urbanization and environmental degradation. See also "Intensive risk".

Forecast

Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area.

Comment: In meteorology a forecast refers to a future condition, whereas a warning refers to a potentially dangerous future condition.

Geological hazard

Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Geological hazards include internal earth processes, such as earthquakes, volcanic activity and emissions, and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows. Hydrometeorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.

Greenhouse gases

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

Comment: This is the definition of the Intergovernmental Panel on Climate Change (IPCC). The main greenhouse gases (GHG) are water vapour, carbon dioxide, nitrous oxide, methane and ozone.

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are "… hazards of natural origin and related environmental and technological hazards and risks." Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological

hazard; Hydrometeorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.

Hydrometeorological hazard

Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Hydrometeorological hazards include tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heatwaves and cold spells. Hydrometeorological conditions also can be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material

Intensive risk *

The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss.

Comment: Intensive risk is mainly a characteristic of large cities or densely populated areas that are not only exposed to intense hazards such as strong earthquakes, active volcanoes, heavy floods, tsunamis, or major storms but also have high levels of vulnerability to these hazards. See also "Extensive risk."

Land-use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Comment: Land-use planning is an important contributor to sustainable development. It involves studies and mapping; analysis of economic, environmental and hazard data; formulation of alternative land-use decisions; and design of long-range plans for different geographical and administrative scales. Land-use planning can help to mitigate disasters and reduce risks by discouraging settlements and construction of key installations in hazard-prone areas, including consideration of service routes for transport, power, water, sewage and other critical facilities.

Mitigation

The lessening or limitation of the adverse impacts of hazards and related disasters.

Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "mitigation" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

National platform for disaster risk reduction

A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

Comment: This definition is derived from footnote 10 of the Hyogo Framework. Disaster risk reduction requires the knowledge, capacities and inputs of a wide range of sectors and organisations, including United Nations agencies present at the national level, as appropriate. Most sectors are affected directly or indirectly by disasters and many have specific responsibilities that impinge upon disaster risks. National platforms provide a means to enhance national action to reduce disaster risks, and they represent the national mechanism for the International Strategy for Disaster Reduction.

Natural hazard

Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the latent hazard conditions that may give rise to future events. Natural hazard events can be characterized by their magnitude or intensity, speed of onset, duration, and area of extent. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be coupled, as in the flood caused by a hurricane or the tsunami that is created by an earthquake.

Preparedness

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Comment: Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term "readiness" describes the ability to quickly and appropriately respond when required.

Prevention

The outright avoidance of adverse impacts of hazards and related disasters.

Comment: Prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance. Examples include dams or
embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Prospective disaster risk management *

Management activities that address and seek to avoid the development of new or increased disaster risks.

Comment: This concept focuses on addressing risks that may develop in future if risk reduction policies are not put in place, rather than on the risks that are already present and which can be managed and reduced now. See also Corrective disaster risk management.

Public awareness

The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

Comment: Public awareness is a key factor in effective disaster risk reduction. Its development is pursued, for example, through the development and dissemination of information through media and educational channels, the establishment of information

centres, networks, and community or participation actions, and advocacy by senior public officials and community leaders.

Recovery

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the "build back better" principle.

Residual risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

Comment: The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio- economic policies such as safety nets and risk transfer mechanisms.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Comment: Resilience means the ability to "resile from" or "spring back from" a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during
times of need.

Response

The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Comment: Disaster response is predominantly focused on immediate and short-term needs and is sometimes called "disaster relief". The division between this response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage.

Retrofitting

Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Comment: Retrofitting requires consideration of the design and function of the structure, the stresses that the structure may be subject to from particular hazards or hazard scenarios, and the practicality and costs of different retrofitting options. Examples of retrofitting include adding bracing to stiffen walls, reinforcing pillars, adding steel ties between walls and roofs, installing shutters on windows, and improving the protection of important facilities and equipment.

Risk

The combination of the probability of an event and its negative consequences.

Comment: This definition closely follows the definition of the ISO/IEC Guide 73. The word "risk" has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in "the risk of an accident"; whereas in technical settings the emphasis is usually placed on the consequences, in terms of "potential losses" for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

See other risk-related terms in the Terminology: Acceptable risk; Corrective disaster risk management; Disaster risk; Disaster risk management; Disaster risk reduction; Disaster risk reduction plans; Extensive risk; Intensive risk; Prospective disaster risk management; Residual risk; Risk assessment; Risk management; Risk transfer.

Risk assessment

A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Comment: Risk assessments (and associated risk mapping) include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes known as a risk analysis process.

Risk management

The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Comment: Risk management comprises risk assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimise risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards. Risk management is a core issue for sectors such as water supply, energy and agriculture whose production is directly affected by extremes of weather and climate.

Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Comment: Insurance is a well-known form of risk transfer, where coverage of a risk is obtained from an insurer in exchange for ongoing premiums paid to the insurer. Risk transfer can occur informally within family and community networks where there are reciprocal expectations of mutual aid by means of gifts or credit, as well as formally where governments, insurers, multi-lateral banks and other large risk-bearing entities establish mechanisms to help cope with losses in major events. Such mechanisms include insurance and re-insurance contracts, catastrophe bonds, contingent credit facilities and reserve funds, where the costs are covered by premiums, investor contributions, interest rates and past savings, respectively.

Socio-natural hazard *

The phenomenon of increased occurrence of certain geophysical and hydrometeorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

Comment: This term is used for the circumstances where human activity is increasing the occurrence of certain hazards beyond their natural probabilities. Evidence points to a growing disaster burden from such hazards. Socio-natural hazards can be reduced and avoided through wise management of land and environmental resources.

Structural and non-structural measures

Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;

Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Comment: Common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters. Common non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programmes. Note that in civil and structural engineering, the term "structural" is used in a more restricted sense to mean just the load- bearing structure, with other parts such as wall cladding and interior fittings being termed non- structural.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Comment: This definition coined by the 1987 Brundtland Commission is very succinct but it leaves unanswered many questions regarding the meaning of the word development and the social, economic and environmental processes involved. Disaster risk is associated with unsustainable elements of development such as environmental degradation, while conversely disaster risk reduction can contribute to the achievement of sustainable development, through reduced losses and improved development practices.

Technological hazard

A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.

** Emerging new concepts that are not in widespread use but are of growing professional relevance; the definition of these terms remain to be widely consulted upon and may change in future.*

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